TM 11-5820-515-12

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

RADIO SET AN/TRC-91

HEADQUARTERS, DEPARTMENT OF THE ARMY
FEBRUARY 1965

TAGO 7387A

WARNING

Be careful when working on the 120-volt terminals. Serious injury or death may result from contact with these terminals.

DON'T TAKE CHANCES!

WARNING

Operator and maintenance personnel should be familiar with the requirements of TB SIG 291 before attempting installation or operation of the equipment covered in this manual. Failure to follow requirements of TB SIG 291 could result in injury or death.

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HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C., 1 February 1965

ORGANIZATIONAL MAINTENANCE MANUAL

RADIO SET AN/TRC-91

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SECTION A

INTRODUCTION

A.1. Scope

This manual covers operator and organizational maintenance for Radio Set AN/TRC-91. It also includes cleaning, inspection, and instructions for performing preventive and periodic maintenance services, and repair functions to be performed by the organizational repairman. This is a first edition manual containing preliminary and unreviewed information compiled by the manufacturer of the equipment. Judicious caution should be used in using the information in this manual until it is replaced by a revised edition.

A.2. Index of Publications

Refer to the latest edition of DA Pam 310-4 to determine whether there are any new editions, changes, or additional publications pertaining to the equipment. Department of the Army Pamphlet No. 310-4 is an index of current technical manuals, technical bulletins, supply manuals (types 4, 6, 7, 8, and 9), supply bulletins, lubrication orders, and modification work orders available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc) and the latest changes to and revisions of each equipment publication.

A.3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38-750.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71-4 (Air Force).

c. Reporting of Equipment Manual Improvements. The direct reporting, by the individual user, of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 will be used for reporting these improvements. This form may be completed by the use of pencil, pen, or typewriter. DA Form 2028 will be completed in triplicate and forwarded by the individual using the manual. The original and one copy will be forwarded direct to: Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-MR-MP-P Fort Monmouth, New Jersey 07703. One information copy will be furnished to the individual's immediate supervisor (officer, noncommissioned officer, supervisor, etc).

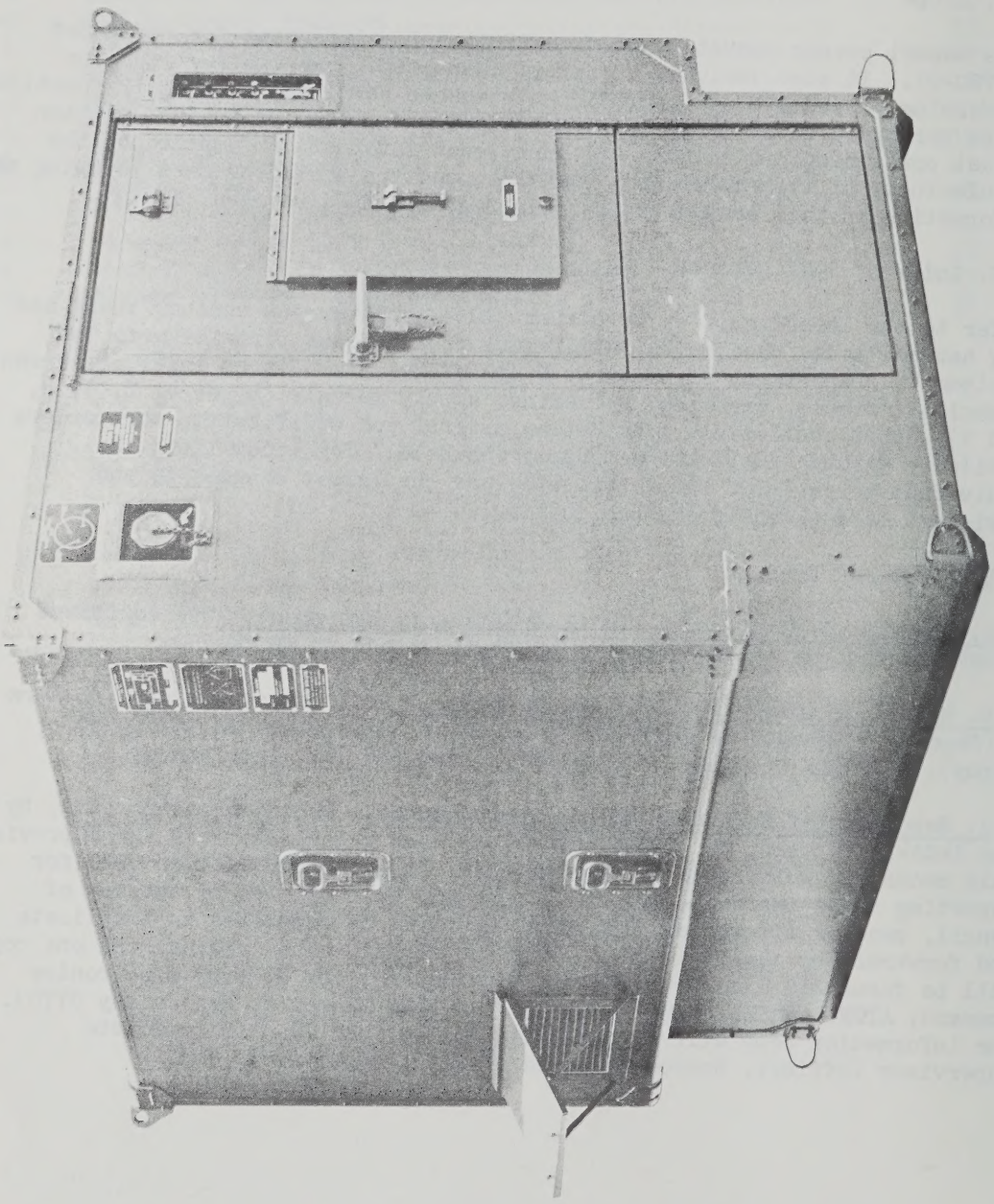


Figure 1-1. AN/TRC-91 Shelter, Exterior View

section 1

general description

1.1 PURPOSE OF INSTRUCTION BOOK.

This instruction book contains a general description, installation, operation, and operators maintenance instructions for Radio Set AN/TRC-91.

The book is divided into 5 sections. They are Section 1 - General Description, Section 2 - Installation, Section 3 - Operating Instructions, Section 4 - Maintenance, and Section 5 - Illustrations.

1.2 PURPOSE OF EQUIPMENT.

Radio Set AN/TRC-91 (figure 1-1) provides reliable, medium-to-long range, 2-way communication in the high-frequency (h-f) band. It can be used for ground-to-air, air-to-ground, or point-to-point service. The equipment uses single-sideband techniques over 28,000 directly selectable frequency channels. The equipment features rapid automatic tuning, ease of maintenance, and compatability with existing AM installations. Linear characteristics in high power transmitter circuits of the AN/TRC-91 make possible a wide range of applications. Single-sideband voice, amplitude-modulated voice, tone-modulated cw, or teletypewriter modes of operation may be used.

1.3 EQUIPMENT DESCRIPTION.

The AN/TRC-91 communication system is comprised of units of the AN/TRC-75 and prefabricated control panels. The major components of the AN/TRC-75, with the exception of two C-3141/TRC-75 control boxes, are secured to ATR Mounting Trays by a clamp assembly. The ATR Mounting Trays are attached to shockmounts which are bolted to the support assembly of the upper and lower console shelves. All major units of the AN/TRC-75 are identified in figures 1-2 and 1-3. Control panels, jackfield panels, and operating panels are mounted to console supports by captive screws. These are also identified in figures 1-2 and 1-3.

1.3.1 EQUIPMENT SUPPLIED.

The equipment supplied is described in the following text and listed in table 1-1.

Refer to NAVMC ELECT 2041, section 1, paragraph 1-2 for functional description of the following AN/TRC-75 units.

a. Radio Set Control C-3141/TRC-75

b. Radio Receiver R-761/ARC-58

c. Radio Transmitter T-730/TRC-75

d. Antenna Coupler CU-749/TRC-75

e. Antenna Coupler Control C-2848/TRC-75

f. Amplifier Assembly AM-2306/TRC-75

g. Converter-Oscillator CV-786/TRC-75

h. Coil Relay Loading Assembly RF-111/TRC-75

Refer to TM-11-2225 for a functional description of Teletypewriter TT-76/GGC and to TM-11-5815-200-10 for a functional description of Teletypewriter TT-98/FG.

Refer to Instruction Book for Control Group AN/GRA-6 for a description of Control Group AN/GRA-6.

Refer to vendor manuals supplied for a description of 28-volt d-c regulated voltage Power Supply, 130-volt d-c Power Supply, and 400-cycle Frequency Converter.

1.3.2 POWER DISTRIBUTION PANEL.

The power distribution panel, figure 1-2, contains 9 circuit breakers through which input power is applied to the operating equipment. Input power is applied through the MAIN circuit breaker to the following equipments.

a. 28-volt d-c Power Supply

b. Security equipment

c. Teletypewriter and 130-volt d-c Power Supply equipment

d. FSK Voice Band Modem C-8102

e. Converter fan

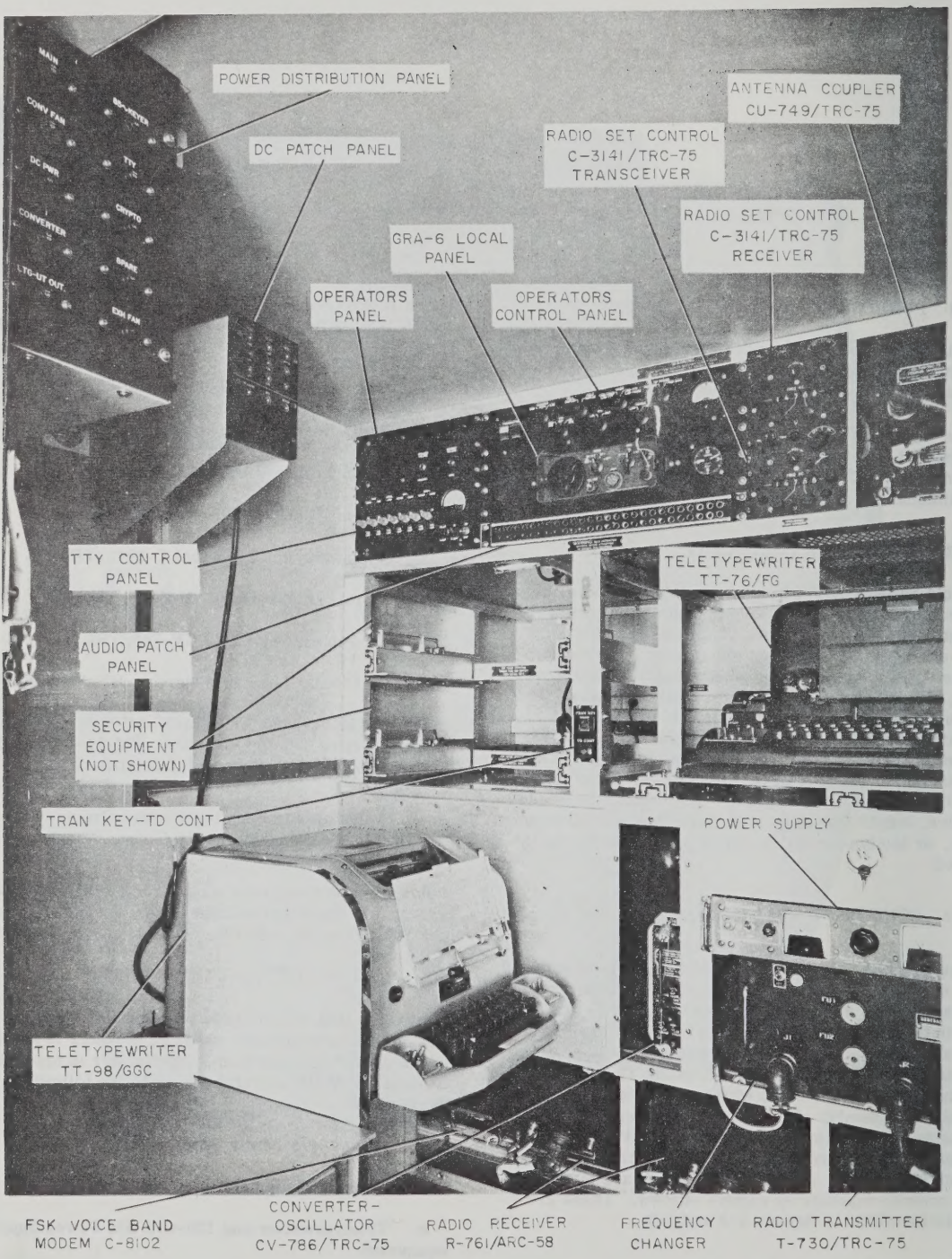


Figure 1-2. AN/TRC-91 Shelter, Interior View, Left-Hand Wall

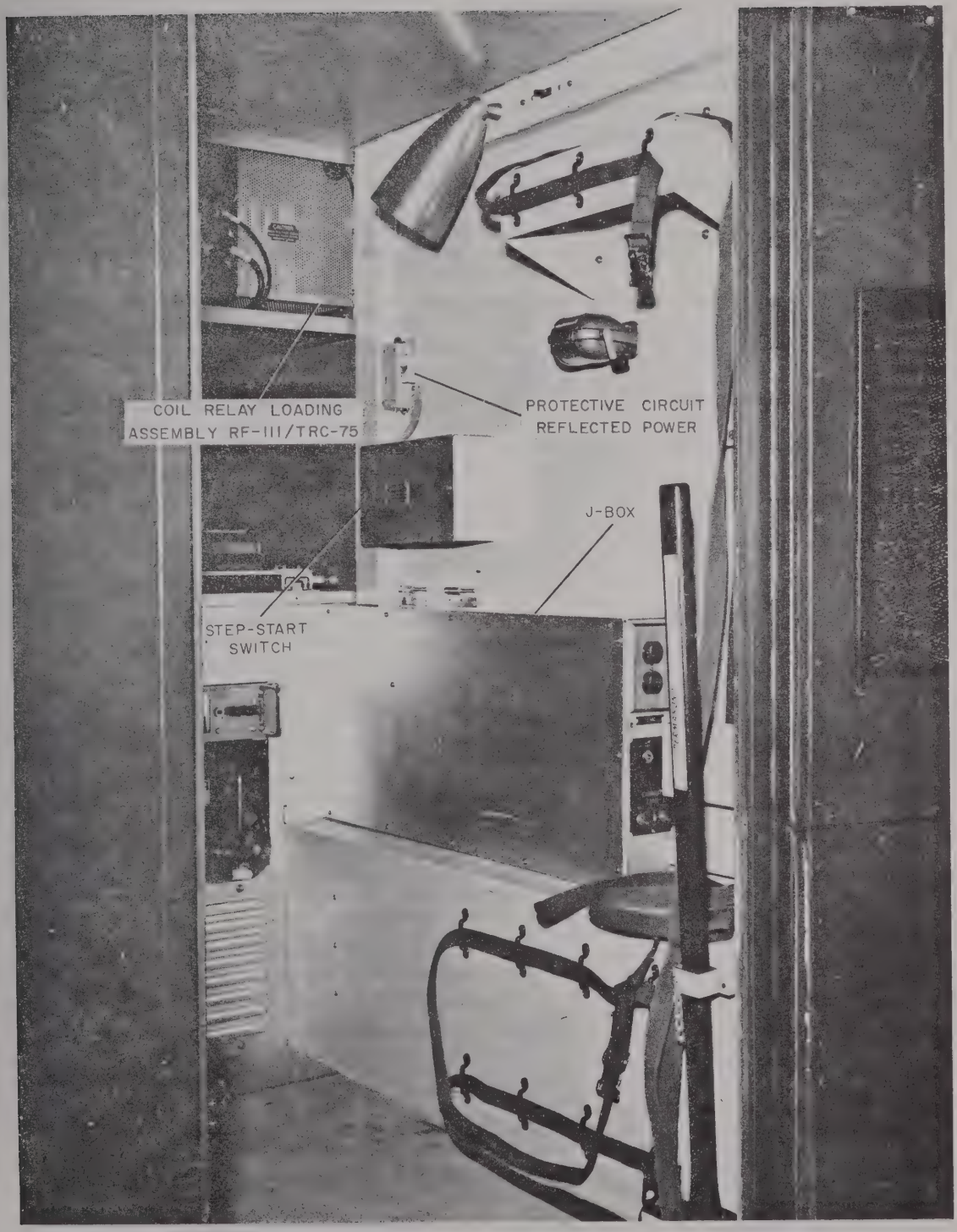


Figure 1-3. AN/TRC-91 Shelter, Interior View, Right-Hand Wall

TABLE 1-1. EQUIPMENT SUPPLIED

NOMENCLATURE	FUNCTION
Radio Set AN/TRC-75 units consisting of the following units.	
Radio Set Control C-3141/TRC-75	Provides means of selecting frequency and mode of operation. Contains ON-OFF switch and VOLUME control.
Radio Receiver R-761/ARC-58	The R-761/ARC-58 is a transceiver with some circuit elements common to both transmission and reception. Receives and transmits in the 2.0 to 29.999 mc range.
Radio Transmitter T-730/TRC-75	High power transmitter. Input of 0.2 watts from the R-761/TRC-75 and linear output to 1 kw PEP.
Antenna Coupler CU-749/TRC-75	Tunes the antenna to the selected operating frequency for transmission and reception.
Antenna Coupler Control C-2848/TRC-75	Contains relay and switching circuits to control Antenna Coupler CU-749/TRC-75.
Converter-Oscillator CV-786/TRC-75	Provides system tie-in between the radio set and the teletypewriter for transmitting and receiving teletypewriter signals.
Coil Relay Loading Assembly RF-111/TRC-75	Determines whether one, both, or none of the antenna loading coils will be used (depends on the operating frequency).
Teletypewriter TT-98/FG	Standard teletypewriter keyboard provides binary signals to transmitting equipment and receives binary signals from receiving equipment.
Teletypewriter TT-76/GGC	Performs same function as TT-98/FG in addition to providing reperforator and tape transmission functions.
Control Group AN/GRA-6	Provides a means of controlling and operating the AN/TRC-75 equipment from either a local or remote position.
Power Distribution Panel	Shelter input circuit breaker panel.
DC (Red) TTY Patch Panel	Provides TTY looping jacks for circuit patching.
Operators Panel	Provides connection points for headset and microphone with associated volume controls. Speaker provided for use in place of headset.
TTY Control Panel	Provides loop current controls for teletypewriter operation.
Operator Control Panel	Provides selection of operating mode, keyer audio frequency, and transmitter power output and provides for measurement of transmitter r-f power output.
Audio (Black) TTY Patch Panel	Provides lift and monitor jacks for circuit patching.
Reflected Power Protective Circuit Unit	Indicates excessive reflected r-f power and r-f fault.
Step-Start Relay	Acts as transient suppressor when transmitter is cycled.
Junction Box (J-Box)	Provides terminals for interconnecting all operating units.
FSK Voice Band Modem C-8102	Provides method of converting binary signals to audio tones during transmission and audio tones to binary signals during reception.
Frequency Converter	Provides 115-volt, 3-phase, 400-cycle power to blowers and T-730/TRC-75.
Blower System	Provides ventilation and cooling air to major AN/TRC-75 units and power converter.
Power Supply, 28 volts dc	Provides operating voltages for control panels.
Power Supply, 130 volts dc	Provides operating voltage for teletypewriter operation.

f. 400 ~ converter

g. Shelter exhaust fans

h. Utility outlets and shelter lighting

1.3.3 DC (RED) TTY PATCH PANEL.

The DC (Red) TTY Patch Panel, figure 1-2, provides jacks for patching meter circuits to send and receive circuits, reperforator (plain language tape) to transmit circuits and pageprinter circuits, and reperforator circuits to keyboard circuits.

1.3.4 OPERATOR'S PANEL.

The Operator's Panel, figure 1-2, is equipped with a speaker, two jacks for headset and microphone connections, and two volume controls. The volume controls set the level of audio applied to the speaker or headset. When the headset is plugged in, the speaker is cut off. When speaker operation is desired, the headset plug must be removed from the headset jack. When speaker operation is used, the audio volume is controlled by headset and speaker volume controls.

1.3.5 TTY CONTROL PANEL.

The TTY Control Panel, figure 1-2, contains a fused ON-OFF switch. The ON-OFF switch controls power to the panel. The PILOT LAMP lights when power is applied. The panel contains seven additional fuses for protection of remote teletype units, 850-cps and 85-cps keyers and converters, and a local teletype loop. The LOCAL teletypewriter loop is not connected in this installation. The protective fuse cap will light when a fuse blows. The LOOP CURRENT meter monitors the loop current of each of the circuits being monitored. The LOOP CURRENT meter input is patched from the DC (Red) TTY Patch Panel. Controls above each fuse vary the amount of loop current. In the AN/TRC-91 system the controls shall be adjusted for a meter reading of 60 ma.

1.3.6 OPERATOR'S CONTROL PANEL.

The Operator's Control Panel, figure 1-2, contains seven switches designed to control the mode of operation, measure r-f power, select the audio frequency from the keyer, and measure r-f power output. A meter is provided which displays the amount of r-f power in watts. Three panel lamps labeled TRANSMITTER provide the operator with a visual indication of the status of the equipment. The three lamps are colored green, yellow, and red. When a frequency change is initiated by the operator, the yellow TUNE lamp will light. When tuning is completed, the green READY lamp will light and the TUNE lamp will extinguish. The red KEY lamp will light when the microphone key is depressed indicating the equipment is transmitting. Depressing TRAN KEY will allow transmission of an 85 ~ tone, an 850 ~ tone, or random noise.

1.3.7 AUDIO (BLACK) TTY PATCH PANEL.

The Audio (Black) TTY Patch Panel, figure 1-2, contains 26 pairs of lift jacks which provide a central point in the system for maintenance testing, measuring signal levels, injecting test signals, and changing interconnections between lines and equipment. Jacks used only for TTY patching are smaller in size. Monitor jacks are provided for patching in test equipment, headsets, and meters for monitoring circuits during normal operation.

1.3.8 REFLECTED POWER PROTECTIVE CIRCUIT UNIT.

The reflected power protective circuit unit, figure 1-3, is equipped with an ON-OFF switch and a red warning light. The unit provides a visual warning indication and turns off the receiver/exciter when the reflected power exceeds the threshold point. Recycling the equipment causes the Antenna Coupler CU-749/TRC-75 to retune, correcting the excessive reflected power condition. The ON-OFF switch, which is normally left in the ON position, provides a fault ground for Control Box C-3141/TRC-75, Receiver/Exciter R-761/ARC-58, Transmitter T-730/TRC-75, and Antenna Coupler Control C-2848/TRC-75 in event of excessive reflected power.

1.3.9 STEP-START RELAY PANEL.

The Step-Start Relay, figure 1-3, suppresses transient current when the equipment is cycled. No operating controls are provided. When the frequency selection is changed at the transceiver (lower) Control Box C-3141/TRC-75, relays mounted in the Step-Start Relay Panel deenergize and put a resistive load in the input circuit of Transmitter T-730/TRC-75. The resistive load lowers the power applied to the transmitter and acts as a transient suppressor.

1.3.10 J-BOX.

The J-Box (junction box), figure 1-3, contains one 30-contact and three 80-contact terminal boards. The 30-contact terminal board provides a common distribution point for a-c and d-c voltages. The three 80-contact terminal boards provide wiring interconnections between units. Two 115-volt a-c convenience outlets, a cw key jack, and two ON-OFF switches for controlling operation of the shelter exhaust fans are mounted on the outside of the box nearest to the shelter access door.

1.3.11 FSK VOICE BAND MODEM C-8102.

FSK Voice Band Modem C-8102, figure 1-2, is a completely transistorized data transmission system that provides up to 18 data channels for transmission on a 3-kc voice channel facility. The system will accept any binary signal such as teletype, telegraph, or logic signals. The transmission rate of 75 words per minute will provide reliable communications in teletype operation. Under ideal conditions the

transmission rate will be approximately 100 words per minute. The C-8102 is a multiplex system containing transmitters which employ frequency shift keying to convert the audio tones back to binary information.

Receivers and transmitters are plug-in card assemblies mounted in card cages. The basic system has no operating controls and is installed for unattended operation.

The FSK Voice Band Modem C-8102 installed in the AN/TRC-91 system, employs one transmitter and one receiver operating on a frequency of 1275 cps. The transmit filter network and receive filter network associated with the FSK transmitter and receiver determine the frequency of operation.

The FSK Voice Band Modem C-8102 is furnished with the units listed in table 1-2.

1.4 SYSTEM SPECIFICATIONS.

1.4.1 GENERAL.

Frequency Range:
2.0 to 29.999 megacycles

Frequency Channels:
28,000, 1-kc r-f channels

Channel Selection Time:
Transmit, not more than 2 minutes maximum
Receive, not more than 45 seconds

Power Required:
Less than 6 kva, 60 cps, 120 volts, single phase

Operation Modes:
Compatible AM, USB, LSB, ISB, and TWIN

Shelter Type:
S-144

Shelter Dimensions:
78 inches deep by 74 inches wide by 73 inches high

Shelter Weight:
Approximately 2000 pounds

1.4.2 TRANSMIT OPERATION.

Noise Output:
40 db minimum down

High Power Output:
SSB
900 watts, 2 to 15 mc: 750 watts, 15 to 29.999 mc

AM
180 watts

CW and FSK
700 watts

Low Power Output:
SSB
100 to 300 watts

AM
40 to 80 watts

CW and FSK
100 watts

1.4.3 RECEIVE OPERATION.

Sensitivity:
SSB
1.0 μv maximum for 10-db signal plus noise-to-noise ratio.

AM
3.0 μv maximum for 10-db signal plus noise-to-noise ratio.

Selectivity:
SSB
3.0 kc minimum at 6-db point; 5.5 kc maximum at 60-db point.

AM
6.0 kc minimum at 6-db point; 10.8 kc maximum at 55-db point.

Audio Distortion
15% maximum

TABLE 1-2. FSK EQUIPMENT SUPPLIED

NOMENCLATURE	FUNCTION
FM Carrier Telegraph Transmitter 34B1-SW	Converts binary information to FSK tones.
Transmit Filter Network	Determines transmitter frequency of 1275 cps. Contains bandpass filter and oscillator network.
FM Carrier Telegraph Receiver 35E2-SW	Converts FSK tones to binary information. It also includes a transistor loop keyer for the basic 35E1-SW receiver.
Receive Filter Network	Selects a proper channel frequency of 1275 cps. Contains a bandpass filter and a discriminator transformer.
Line Matching Card	Permits channel receivers and transmitters to be connected directly to a 4-wire balanced line without additional common equipment.
1/2 ATR Module Box	Provides mounting and interconnection for cards.
Power Supply 16C-1	Provides d-c power to FSK receiver and transmitter.

section 2

installation

2.1 INTRODUCTION

This section contains information necessary to perform functions required to complete installation and to conduct preoperational tests prior to use. After the shelter has been installed or the equipment shut down, the equipment should be checked by direct support maintenance personnel.

2.2 SHELTER ORIENTATION.

The best location for the shelter depends upon the tactical situation; however, the need for camouflage and the surrounding terrain must be considered. The radio set will have the greatest communication range is the antenna is high and clear of such obstacles as hills, buildings, cliffs, and wooded areas. Location under or close to steel bridges, underpasses, power lines and power units should be avoided. If possible, the shelter should be located on a hilltop or other high place. A flat surrounding terrain is desirable.

Before any connections are made to the shelter, the shelter must be grounded and the antennas installed and braced.

2.3 PREPARATION FOR USE.

Communication System AN/TRC-91 is transported with its complete operating equipment contained in the shelter. The shelter may be transported to the site location by air transport (fixed-wing aircraft), air transport (rotary-wing aircraft), rail transport, or vehicular transport.

All of the slings and hardware necessary to secure the system for transportation are contained in the lifting and tie down sling assembly.

When the shelter is received at the installation site, perform the following steps.

a. Unstrap the wastepaper receptacle from the chair and remove.

b. Unstrap the chair from the accessory box and remove.

c. Open the box and remove the bag containing tools.

d. With the wrench supplied, unbolt the accessory box from the floor of the shelter and remove the box from the shelter.

e. Unbolt the cable reels from the floor and remove them from the shelter.

f. Remove the straps from the canvas bags on the right-hand wall and remove the canvas bags from the shelter. These canvas bags contain all elements necessary for antenna installation.

2.3.1 INSTALLATION OF SHELTER GROUND ROD.

The shelter mounted antenna and its associated installation hardware is stowed under canvas on the right-hand wall of the shelter. Perform the following steps.

a. Remove the web straps holding the canvas bag to the wall and remove the bag from the shelter. The canvas bag contains, one ground strap, one antenna guy rope ring, three guy ropes, and eight 4-foot antenna sections.

b. Loosen the bolt holding one ground rod and slide the ground rod from the clamp. The ground rods are located on the roof of the shelter and are secured to the shelter by clamps. The ground rod should be located not more than four feet from the AC Power Entry Panel. The AC Power Entry Panel is located on the front outside wall to the left of the shelter access door.

c. Remove the sledge hammer from the retainer and drive the ground rod 6 to 7 feet into the ground.

d. If the immediate area is dry, wet the surrounding area to provide a positive ground.

e. Connect the ground rod to the shelter by one of the two ground connecting cables. The ground connecting cable is a braided strap with a lug connector on both ends.

CAUTION

Do not use mechanical means to tighten the wing nut.

f. Place one lug on the braided ground strap over the bolt on the ground rod and secure the ground strap to the rod with the wing nut.

g. Connect the other end of the ground strap to the terminal marked GROUND on the AC Power Entry Panel on the shelter. The AC Power Entry Panel is shown in figure 2-1.

2.3.2 INSTALLATION OF SHELTER MOUNTED ANTENNA.

Before the shelter mounted antenna can be installed on the shelter; the antenna mast base must be installed. The antenna base is stored on the floor beneath Teletypewriter TT-98/FG. Peform the following steps.

a. Unbolt the antenna base from the bracket located on the floor by removing the three wing nuts which secure it.

b. Remove the antenna mast base cover located on the roof of the shelter by removing the wing nuts.

c. With the cover removed, inspect the cup mating surface in the mast base receiving receptacle for dirt or foreign matter.

d. Inspect the cone of the antenna mast for dirt or foreign matter.

e. Place the antenna mast base into the antenna mast base receptacle.

CAUTION

Do not use mechanical means to tighten the wing nuts.

f. Align the four holes in the antenna mast base with four bolts in the shelter and replace the four nuts. Tighten the wing nuts hand tight.

CAUTION

Do not use mechanical means to tighten the antenna sections.

g. Remove the eight 4-foot antenna sections from the bag. Each section has right-hand threaded male fitting on one end and a female fitting on the other end.

h. Starting with the largest (in diameter) section, join the next smaller section and continue until all eight sections are assembled.

i. Remove the guy rope antenna ring from the stowage bag.

j. Place the ring over the small end of the antenna and slide the ring down until it seats against the antenna.

k. Snap the snap hooks of the three guy ropes into the holes on the antenna ring.

l. Mount the antenna by threading the antenna into the antenna mast base.

m. Remove the guy rope stakes from the storage bag.

n. Using the sledge hammer, drive the guy rope stakes into the ground leaving approximately 4 inches of the stake extending above ground. The stakes should be located approximately 15 feet from the antenna projected centerline and spaced 120° apart.

o. Snap the guy ropes to the stakes in the holes provided and remove the slack by adjusting the slack adjusters on the guy ropes.

p. After the three guy ropes are secured, each slack adjuster should be adjusted until the antenna is straight and vertical and the guy ropes are without slack. The shelter mounted antenna is now ready for operation.

2.3.3 INSTALLATION OF GROUND MOUNTED ANTENNA.

The ground mounted antenna is of the same type as the shelter mounted antenna, a 32-foot fiberglass constructed whip antenna. The ground mounted antenna may be erected anywhere within 100 feet of the shelter. A high terrain located as far from the shelter as possible is preferred.

The ground mounted antenna is stored in a canvas bag inside the shelter on the right-hand wall. Unbuckle the end straps and remove the ground mounted antenna stowage bag. The ground mounted antenna stowage bag contains one antenna guy rope ring, three guy ropes, one antenna base adapter, and eight 4-foot sections of antenna. The ground mounted antenna base is located in the storage box. The ground mounted antenna may be erected anywhere within a 100-foot radius but at least 75 feet from the shelter. When a desirable location is selected for erection of the ground mounted antenna, place the antenna base firmly on the ground and perform the following steps.

a. Remove the eight 4-foot sections of the antenna from the antenna stowage bag. Each section has a right-hand threaded male fitting on one end and a female fitting on the other end.

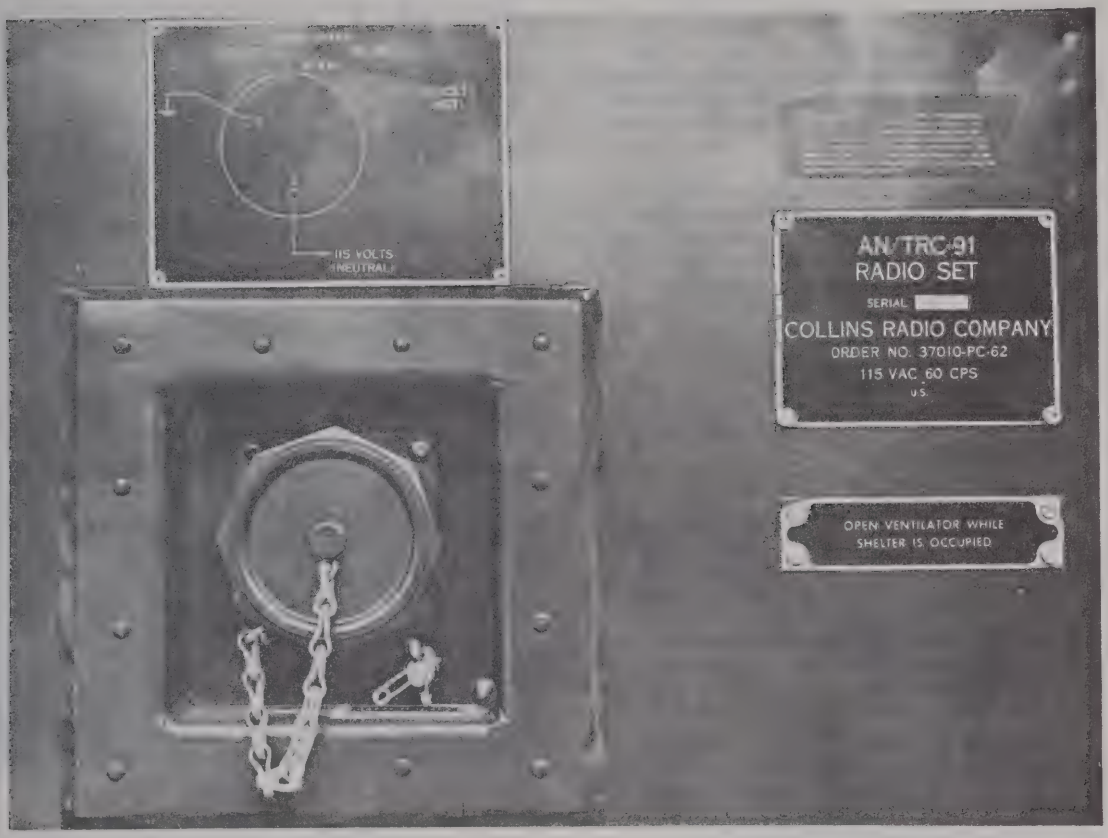


Figure 2-1. AC Power Entry Panel

CAUTION

Do not use mechanical means to tighten the antenna sections.

b. Starting with the largest (in diameter) section, join the next smaller section and continue until all eight sections are assembled.

c. Remove the antenna adapter from the ground mounted antenna stowage bag and place the adapter on the antenna.

d. Remove the guy rope antenna ring from the stowage bag, place the ring over the small end of the antenna, and slide the ring down until it seats against the antenna.

e. Remove the three guy ropes from the stowage bag and snap them to the antenna guy rope ring.

f. Insert the base end of the antenna into the ground mounted antenna base.

g. Extend the guy ropes from the antenna to the ground at an angle of approximately 45°, about 15 feet from the antenna base.

h. Remove the three guy rope stakes from the stowage bag.

i. Using the sledge hammer, drive the ground stakes into the ground leaving approximately 4 inches of the stake extending above ground. The ground stakes should be 15 feet from the antenna base and spaced 120° apart.

j. Snap the guy ropes to the ground stakes in the holes provided and remove the slack from the guy ropes by adjusting the slack adjusters on them.

k. Adjust the slack adjusters until the antenna is straight and vertical.

l. Remove the 8-foot ground rod from the shelter roof.

m. Drive the ground rod 6 to 7 feet into the ground and within 4 1/2 feet from the ground mounted antenna base. If the area around the ground rod is dry, wet the surrounding area to obtain a positive ground.

n. The ground rod is connected to the antenna adapter by a ground connecting braided cable. Remove the ground connecting cable from the stowage bag and connect one lug end of the cable to the 3/4-inch hex bolt on the antenna adapter.

CAUTION

Do not use mechanical means to tighten the wing nut.

o. Place the other lug end of the braided cable over the bolt on the ground rod. Secure the cable to the ground rod with a wing nut and tighten hand tight. The ground mounted antenna is connected to the shelter entry by a 100-foot coaxial cable. (This cable is stowed on one of the removable reels bolted to the floor of the shelter. Refer to paragraph 2.3 for removal instructions.)

p. Connect the connector on the outside end of the reel to the antenna entry marked ANTENNA. The antenna entry is located on the Signal Entry Panel, figure 2-2, located on the outside front of the shelter to the right of the shelter access door.

q. Store the reel outside the shelter during operation. The ground mounted antenna is now connected for operation.

2.4 SHELTER CONNECTIONS.

The AN/TRC-91 shelter operating components are internally connected and no further internal connections are required for operation. There are, in FSK Voice Band Modem C-8102, strapping options available for low voltage and high voltage transmitter input, 60 ma and 20 ma loop input options, options for receiver strapping making the receiver compatible with the transmitter and, options for transmitter keyer strapping to provide a high frequency output for the mark or high frequency output for the space. The equipment as supplied was strapped for 60 ma, high mark, positive keying operation. Other strapping options are shown in tables 2-1, 2-2, and 2-3.

2.4.1 ANTENNA AND GROUND ROD CONNECTIONS.

Refer to paragraph 2.3.1 through 2.3.3 for instructions on antenna and ground rod connections.

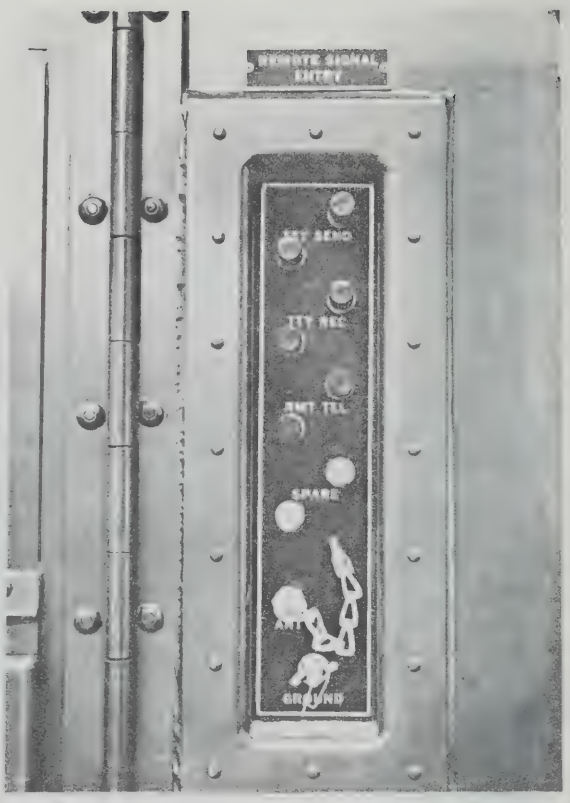


Figure 2-2. Signal Entry Panel

2.4.2 INPUT POWER.

A source of power capable of delivering 115 volts ac, 60 cps at 6 kva is required. The power from the power source is introduced to the shelter at the AC Power Entry Panel shown in figure 1-1.

CAUTION

The power source must be turned off when mating the plug to the receptacle.

Remove the cap covering the power input receptacle and insert the power plug securely. Failure to ensure a good secure fit may result in improper operation and possible damage to the shelter equipment.

2.4.3 TELETYPEWRITER AND REMOTE TELEPHONE LINES.

The Remote Signal Entry Panel, figures 1-1 and 2-2 located on the outside front of the shelter to the right

of the access door, provides three pairs of terminal jacks for connecting teletypewriter transmission lines, teletypewriter receiving lines, and 2-wire telephone lines to a remote control unit. The remote control unit may be located up to two miles from the shelter. One spare set of jacks is provided. The Remote Signal Entry Panel also contains a ground lug and a coaxial receptacle for a remote ground mounted antenna.

When the shelter mounted antenna, ground mounted antenna, power source, and remote control connections have been completed, the shelter is ready for operation.

TABLE 2-1. TRANSMITTER INPUT STRAPPING

	LOW VOLTAGE		HIGH VOLTAGE		60-MA LOOP		20-MA LOOP	
	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE
STRAP	M-N	M-N L-K	NONE	L-K	P_1-N_1 P-R M-N	P_1-N_1 P-R M-N L-K	P_1-N_1 M-N	P_1-N_1 M-N L-K

TABLE 2-2. TRANSMIT KEYER STRAPPING

POLARITY OF MARK	HIGH FREQUENCY OUTPUT FOR MARK	HIGH FREQUENCY OUTPUT FOR SPACE
NEGATIVE	Strap W-Z; X-Y	Strap W-X; Y-Z
POSITIVE	Strap W-X; X-Z	Strap X-Z; X-Y

TABLE 2-3. RECEIVER STRAPPING

CARRIER TONE	STRAPPING OPTION	LOGIC OUTPUT VOLTAGE	TRANSISTOR LOOP KEYER	POLAR RELAY CONTACTS
HIGH FREQ	J-K, L-M	0	OFF	4-6 Closed
HIGH FREQ	J-L, M-K	-24	ON	6-7 Closed
LOW FREQ	J-K, M-L	-24	ON	6-7 Closed
LOW FREQ	J-L, M-K	0	OFF	4-6 Closed

LOOP KEYER STRAPPING:

20-ma loop, none

60-ma loop, R-S

For Full Duplex, U-V

section 3

operating instructions

3.1 INTRODUCTION.

This section contains a description and function of all operating controls and indicators not covered by NAVMC ELECT 2040, section 2. This section also describes preliminary starting procedures, operating procedures using different modes of operation, and system turn off procedure. Refer to NAVMC ELECT 2040, figures 2-1 and 2-2, for use with the following discussion.

3.2 DESCRIPTION OF CONTROLS.

The operating controls and indicators are listed in table 3-1. The order in which the controls are listed does not constitute an operating sequence.

Refer to Instruction Book for Control Group AN/GRA-6 for description and function of controls on Local Control Unit C-434/GRA-6.

3.3 OPERATING PROCEDURE.

3.3.1 SEQUENCE OF OPERATION BEFORE USE.

Prior to operation, perform the following preliminary steps.

a. Ensure antennas are properly mounted and cabled to the shelter.

WARNING

The primary power source should not be operating when connecting the primary power plug to the shelter receptacle.

b. Ensure power plug from the power source is properly and tightly mated with receptacle on AC Power Entry Panel.

CAUTION

Omission of step c. may allow operating equipment temperatures to rise and faulty operation may result.

c. Open outside ventilator doors located on all four sides of the shelter.

d. Exhaust fans, for operator comfort, may be turned on by placing EXHAUST FAN ON-OFF switches, located on J-box, to the ON position.

e. Ensure CONVERTER FAN circuit breaker is depressed and external power is turned on. The converter fan should be on.

f. Turn ON-OFF switch on 28-volt d-c power supply to the ON position.

g. Place ON-OFF switch on power converter to ON.

h. If converter fan is in operation, turn on the converter by depressing the FREQUENCY CHANGER RESET button.

i. Turn the converter key switch to ON.

3.3.2 SEQUENCE OF OPERATION DURING USE.

For operating procedures of the AN/TRC-75 equipment, refer to NAVMC ELECT 2040, section 2, paragraph 2-3.

3.3.2.1 VOICE OPERATION. Perform the following steps for local operation.

a. Rotate USB-VOICE/LSB-VOICE switch to mode of operation desired.

b. Turn 850CPS-TTY OFF-85CPS switch to TTY OFF position. If simultaneous voice and TTY transmission is desired, this switch shall be set as described in paragraph 3.3.2.2, step c.

c. Set mode selector switch on transceiver (lower) Control Box C-3141/TRC-75 to mode of operation desired.

d. On GRA-6 Local Control Panel, turn LOCAL switch to SET 1 position.

e. Place POWER HI-LOW switch to desired setting.

f. Place RF POWER switch to the FWD 1000 position.

TABLE 3-1. OPERATING CONTROLS AND INDICATORS

NAME OR SYMBOL	LOCATION	FUNCTION
Speaker Volume	Operators Panel	Speaker audio volume control.
Headset Volume	Operators Panel	Headset and speaker audio volume control.
ON-OFF switch	TTY Panel	Applies operating power to TTY loop circuits.
Pilot Lamp	TTY Panel	When lit, indicates power is applied to TTY panel loop circuits.
RMT Send Rec 85 Keyer Conv. 850 Keyer Conv. Local Loop	TTY Panel	Each control knob controls the amount of loop current in the circuit. The loop current is monitored by the meter on the right-hand side of the TTY Control Panel. The LOCAL LOOP is not connected.
Meter	TTY Panel	Provides readout of loop current patched from DC (Red) TTY Patch Panel.
F1 through F8	TTY Panel	Protective fuses for each of the loop circuits. Protective cover lights when fuse blows.
TRANSMITTER	Operators Control Panel	Three-colored lamp indicator. When yellow lamp is lit, indicates equipment is in tuning cycle. When green lamp is lit, indicates transmitter tuning cycle is complete. Red lamp lights when key or microphone button is depressed indicating equipment is transmitting.
Monitor USB-BOTH-LSB	Operators Control Panel	Monitors receiver audio (Voice or TTY tones) on USB, BOTH, or LSB of the receiver in use.
FULL DUPLEX-HALF DUPLEX	Operators Control Panel	Selects full duplex or half duplex receiver operation.
MODE selector switch	Operators Control Panel	Selects one of the following modes of operation. a. LSB-TTY and USB-VOICE b. USB-TTY and LSB-VOICE
PF POWER switch FWD 1000 REF 100	Operators Control Panel	Selects meter reading showing transmitter output power to the antenna (FWD), or transmitter output power reflected from the antenna (REF).
850~-TTY OFF -85~ switch	Operators Control Panel	For teletypewriter operation. Selects either 85~ or 850~ used in keying the Converter-Oscillator. When in TTY OFF position, disables teletypewriter circuits.
TTY switch LCL RMT	Operators Control Panel	This switch is not connected .

TABLE 3-1. OPERATING CONTROLS AND INDICATORS (Cont)

NAME OR SYMBOL	LOCATION	FUNCTION
POWER HI-LOW switch	Operators Control Panel	Selects transmitter power output.
RF WATTS meter	Operators Control Panel	Indicates transmitter power high and low, and reflected power in watts.
TRAN KEY	Support assembly to right of Security Equipment	Keys transmitter for TTY operation. Lamp lights when key is depressed.
TD Cont	Support assembly to right of Security Equipment	Allows TD to send plain text TTY transmissions.

g. Depress the pushbutton, speak into the microphone and observe the RF WATTS meter on the Operator's Control Panel for readings similar to those listed in table 4-4.

Perform the following steps for remote operation.

h. Repeat steps a., b., and c.

i. On the GRA-6 Local Control Panel, place REMOTE switch in SET 1 & 2. Place LOCAL switch in SET 2.

j. Repeat steps e. and f.

k. At the remote operators position, place SELECTOR switch in middle position.

l. At the remote position, depress the pushbutton and speak into the microphone.

3.3.2.2 TTY OPERATION. Perform the following steps for local TTY operation.

a. On TT-98/GGC operate the TTY POWER switch to the ON position.

b. On Operator's Control Panel, operate USB TTY or LSB TTY switch to the desired position.

Note

No provisions exist in the radio set to transmit teletypewriter signals on the (amplitude-modulation) AM. mode.

c. On the Operator's Control Panel, rotate 850CPS-TTY OFF-85CPS switch to either 85CPS or 850CPS, depending on desired mode of operation.

d. Rotate POWER switch to HI or LOW if LOW power is sufficient.

e. Rotate FULL DUPLEX/HALF DUPLEX switch to desired position.

f. Key transmitter by depressing TRAN KEY. If crypto operation is desired, ensure that the brackets installed in the space provided for the security equipment are removed. Install the security equipment and place the brackets in the storage box.

Note

With the security equipment installed the brackets must not be used. If the brackets are used with the security equipment, classified messages will be transmitted in plain language and received messages will be garbled.

If plain language is desired, it may be transmitted by one of the following methods.

g. Remove the security equipment and install the brackets in the space provided by removal of the security equipment. The brackets in effect bypass the security equipment and the teletypewriter output is applied directly to the transmitter. In order for the TD to step the TD CONT button must be pressed.

h. With the security equipment installed, plain language may be sent by switching the security equipment to the plain text position and holding down the TD CONT button located on the support to the right of the security equipment. Failure to hold the TD CONT button down will result in the TD stopping.

CAUTION

If it is necessary to hold the TD CONT button down, plain text is being transmitted. Use of the keyboard for "on the air" transmissions should not be used as this safety feature is not present for keyboard operation.

Perform the following steps for remote TTY operation.

Note

TTY operation from the remove operators position is capable of plain text transmission only.

i. At remote operators location, place TTY POWER switch on the TT-98/GGC to the ON position.

j. Repeat steps b. through e.

k. On the Audio (Black) TTY Patch Panel, patch REM TX (JB-24U) to RY-5 TX (JB-25U) and REM RX (JB-24L) to RY-5 RX (JB-25L).

3.3.2.3 CW OPERATION. Fow cw operation, perform the following steps.

a. Insert key plug into key jack on the J-Box located on the right-hand wall.

b. On the Operator's Control Panel place MODE switch in USB-VOICE position and place the 850CPS-TTY OFF-85CPS switch to the TTY OFF position.

c. On Control Box C-3141/TRC-75, place AM-U-L-TWIN control in any position except AM.

d. Depressing the hand key keys an 850-cps audio tone for cw operation.

3.4 EMERGENCY OPERATION.

During the course of operating the AN/TRC-75, conditions such as radio silence, circuit failure, atmospheric conditions or jamming could be encountered. Since these are not normal conditions procedures other than normal are necessary to permit continued operation.

3.4.1 OPERATION DURING RADIO SILENCE.

During periods of radio silence, reception is the only phase of operation permissible. To prevent any accidental occurrence of transmission, remove the microphone plug from the jack, remove the key plug from the key jack on the J-Box, and place the REMOTE switch on the AN/GRA-6 Local Control Unit to TEL. Do not move LOCAL switch on the AN/GRA-6. Under normal conditions, the radio set undergoes coarse tuning when a frequency change is initiated. During final tuning an 800-cycle tune tone is transmitted; therefore, only coarse tuning is permitted and complete tuning is not permissible. Under coarse timing conditions, the receiver will be properly tuned and will operate, but the final power amplifier stages and the antenna will not be tuned.

3.4.2 OPERATION DURING CIRCUIT FAILURE.

If the radio set becomes inoperative because of circuit failure, the nature of the failure determines if communication can continue.

a. Check the input voltage to the radio set. Refer to the power source instruction manual for information.

b. Make certain that the power cable is not broken and that it is tightly secured to the primary power source and the shelter input receptacle.

c. Recycle Power Converter turn on.

d. Recycle the equipment to retune Antenna Coupler CU-749/TRC-75.

e. Make certain that the antennas are not shorted to the shelter or to surrounding objects in the area of the antenna. All antenna connections should be tightly secured to the antenna feedpoint and to the base of the antenna on the antenna standoff.

f. Attempt operation at different modulation modes (voice, cw, or teletype), operation modes (AM-U-L-TWIN), operating frequencies, and transmitter output levels (POWER HI-LOW).

g. Replace the microphone, headset or speaker, handset, or teletypewriter with equipment known to be operative.

3.4.3 OPERATION DURING ATMOSPHERIC DISTURBANCE OR JAMMING.

The procedures which may reduce or elimate the effects of atmospheric disturbances or jamming consist of changing operation modes (AM-U-L-TWIN), operating frequency, or modulation modes. Upper or lower sideband or double sideband modes (U L or TWIN) are advantageous because they have a suppressed carrier frequency and narrow bandwidth. Cw operation also reduces the bandwidth necessary to transmit and receive understandable information. Double-sideband (TWIN) operation is advantageous under atmospheric conditions which cause fading. Changing the operating frequency may displace the received or transmitted signals from the disturbing or jamming frequency.

3.5 TURN OFF PROCEDURE.

To secure operation and shut down the system perform the following steps.

Note

Do not remove power from the shelter by opening the circuit breakers located on the Power Distribution Panel. In the event primary power must be left on, turning off all units except converter fan and FSK Voice Band Modem C-8102 will be adequate.

a. Use ON-OFF switches on all units to turn power off.

b. Turn exhaust fans off.

c. Allow converter fan to operate 10 to 20 minutes after converter is turned off.

d. Allow primary power supply to operate until converter cooling has occurred.

SECTION 4

OPERATOR'S MAINTENANCE

4.1 PREVENTIVE MAINTENANCE INSTRUCTIONS

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

a. Systematic Care. The procedures given in paragraphs 4.2 through 4.3.1 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (para 4.2.1 and 4.3) outline functions to be performed at specific intervals. These checks and services are to maintain army electronic equipment in a combat-serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the charts indicate what to check, how to check, and what the normal conditions are. The References column lists the paragraphs or manuals that contain supplementary information. If the defect cannot be remedied by the operator, higher echelon maintenance or repair is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

4.2 PREVENTIVE MAINTENANCE CHECKS AND SERVICES PERIODS

a. Preventive maintenance checks and services of the equipment are required on a daily and weekly basis. Paragraph 4.2.1 specifies checks and services that must be accomplished daily or under the special following conditions:

(1) When the equipment is initially installed.

(2) When the equipment is reinstalled after removal for any reason.

(3) At least once each week if the equipment is maintained in a standby condition.

b. Paragraph 4.3 specifies additional checks and services that must be performed once each week.

4.2.1 DAILY PREVENTIVE MAINTENANCE CHECKS AND SERVICES CHART

Sequence No.	Item	Procedure	References
1	Shelter skin	Check for skin punctures, cracks, or open seams which could permit moisture to enter shelter walls.	
2	Grounding system	Check for proper installation.	
3	Lifting straps, holddown clamps, and turnbuckles	Check the holddown clamps, turnbuckles, and lifting straps for broken, bent, or twisted parts.	
4	Power and signal cable assemblies	Clean cable insulation and connectors. Tighten loose connections. Put covers on unused cable connectors to keep out moisture, dirt, and sand, and to protect contacts.	
5	Trailer	Clean the trailer floor and the area around the power unit.	
6	Mast bases and antennas	Inspect for looseness, bends, and corrosion.	
7	Insulators	Check for cracks, chips, and looseness.	
8	End item equipment	Inspect equipment for completeness.	Tables 1-1 and 1-2.

4.2.1 DAILY PREVENTIVE MAINTENANCE CHECKS AND SERVICES CHART (cont)

Sequence No.	Item	Procedure	References
9	Exterior surfaces	Clean exterior surfaces, including panel and meter glasses. Check all meter glasses for cracks.	Para 4.3.1.
10	Connectors	Check tightness of all connectors.	
11	Cables	Inspect cords, cables, and wires for chafed, cracked, or frayed insulation.	
12	Handles and latches	Inspect handles, latches, and hinges for looseness.	
13	Controls and indicators	While making operating checks (item 14), observe that mechanical action of each knob, dial, and switch is smooth, and free of external and internal binding, and that there is no excessive looseness. Also check meter for sticking or bent pointer.	
14	Operation	Operate equipment in accordance with instructions in applicable literature. During operation, be alert for any unusual signs or conditions.	Section 3.

4.3. WEEKLY PREVENTIVE MAINTENANCE CHECKS AND SERVICES CHART

Sequence No.	Item	Procedure	References
1	Antenna mount	Tighten antenna mount and connections.	
2	Guy wires	Inspect antenna guy wires for proper tension.	
3	Shelter	Inspect shelter for adequacy of weatherproofing.	
4	Air filters	Clean all air filters on shelter ventilators and equipment blowers.	

4.3.1 CLEANING

Inspect the exterior of the equipment. The exterior surfaces should be clean and free of dust, dirt, grease, and fungus.

a. Remove dust and loose dirt with a clean soft cloth.

Warning: Cleaning compound is flammable and its fumes are toxic. Provide adequate ventilation. Do not use near a flame.

b. Remove grease, fungus, and ground-in dirt from the cases; use a cloth dampened (not wet) with Cleaning Compound (Fed. Stock No. 7930-395-9542).

c. Remove dust or dirt from plugs and jacks, with a brush.

Caution: Do not press on the meter faces (glass) when cleaning; the meters may become damaged.

d. Clean the front panel, meters, and control knobs; use a soft clean cloth. If dirt is difficult to remove, dampen the cloth with water and use mild soap if necessary.

TABLE 4-1. GENERAL VISUAL INSPECTION

ITEM	INSPECTION
Wiring	Frayed or burned insulation broken wires
Shielding	Frayed, damaged
Potentiometers and switches	Unusual ease or difficulty of turning
Test Points	Damaged pin receptacles, broken body, shorts between receptacle and chassis
Connectors	Broken body, broken or loose contacts or pins, corroded pins or contacts, broken solder lugs
Chassis	Dented, damaged
Covers	Dented, cracked
Brackets	Loose, broken, missing
Hardware	Loose, missing, damaged
Finish	Chipped; dirty

4.3.2 OPERATOR'S CHECKS BEFORE USE.

Prior to operation, the following items should be checked daily.

CAUTION

Power cables may be damaged if they are not tightly connected to their receptacles. Equipment damage may also occur.

a. Check the plugs of the power cable for tightness at the output jack of the power source and the input receptacles at the Power Entry Panel.

CAUTION

If the antenna connections are loose, or if the antenna is near or touching surrounding objects, the radio set will not operate at maximum efficiency and may be damaged. Do not attempt to operate the radio set without an antenna.

b. Check the antenna connections for tightness and freedom from surrounding objects.

c. Check all ground straps and cables for tightness.

d. Before connecting the microphone, headset, or handset, check the cords for possible damage. Ensure plugs are properly mated and engaged to the proper jacks.

4.3.3 OPERATOR'S CHECKS DURING USE.

Perform the following steps to check overall operation of the AN/TRC-91 system.

a. Turn on the primary power source.

b. Depress circuit breakers located on the Power Distribution Panel. The circuit breakers should remain in the ON (depressed) position without being held manually.

CAUTION

Do not hold the circuit breakers in the ON position as equipment damage may result. If the circuit breakers do not remain in the ON position, higher echelon maintenance is required.

c. Ensure converter fan is operating.

d. Ensure 28-volt d-c Power Supply and Frequency Converter are turned on. Also ensure switch on Circuit Breaker Panel has been depressed (and released).

CAUTION

If the ON-OFF switch fails to remain in the ON position without being held manually, a faulty major unit is indicated and higher echelon maintenance is required. The radio set may be damaged if the switch is held in the ON position.

e. On Radio Set Control C-3141/TRC-75, rotate the ON-OFF switch to the ON position. Make certain the switch engages and remains on the ON position without being held manually.

f. When selecting the operating frequency for the radio set, check the columns of the FREQ KC dial on Radio Set Control C-3141/TRC-75 for the desired frequency digits.

Note

In order for the 800-cycle tune-tone to be heard, the FULL DUPLEX/HALF DUPLEX switch must be in the HALF DUPLEX position.

g. After each selection of the operating frequency, check for coarse tuning by listening for an 800-cycle tune-tone in the headset or speaker.

h. When coarse tuning is completed (tune-tone stops), initiate complete-tuning by depressing the microphone switch. The tune-tone should be heard and should cease when tuning is complete.

i. Place RF POWER switch in the FWD 1000 position. Check the top scale of the RF WATTS meter for a reading of 100 watts during the complete-tuning cycle. If the RF POWER switch is in the REF 100 position during complete tuning, the RF WATTS meter should oscillate and then go to zero at the completion of tuning. This condition is normal.

j. If tuning does not complete with, RF POWER switch in FWD 1000 position, the system goes into fault tuning and disables Radio Transmitter T-730/TRC-75. Incomplete tuning is indicated by the tune-tone remaining on for 2 minutes.

k. With the RF POWER switch on REF 100 position, the RF WATTS meter will oscillate and then go to zero at the completion of tuning. If the meter does not go to zero, the system goes into fault tuning and disables Radio Transmitter T-730/TRC-75.

Note

Wait 15 seconds before attempting to recycle the equipment. This allows the thermal relay in Antenna Coupler Control C-2848/TRC-75 to unlatch.

CAUTION

When performing step l. do not attempt to complete-tune the radio set. An attempt to complete-tune the radio set will cause a 100-watt signal to be transmitted on WWV frequencies. To prevent accidental transmission, remove the microphone and handkey plugs from their respective jacks and on the GRA-6 Local Control, place LOCAL switch to the TEL position.

l. Allow Radio Set AN/TRC-75 to warm up for approximately 15 minutes and select U at the mode selector on the upper C-3141/TRC-75. Select the following WWV frequencies on the C-3141/TRC-75 and monitor the tone modulation of WWV for each frequency: 2.5, 5.0, 10.0, 15.0, 20.0, and 25.0 megacycles. During coarse tuning of the AN/TRC-75, an 800-cycle tune-tone should be heard in the headset or speaker.

m. Check transmit operation by selecting a frequency on which test transmissions may be made. Select frequency and AM. mode of operation at the C-3141/TRC-75. The tune-tone should cease when coarse tuning is completed. Coarse tuning should take no more than 20 seconds. Depress the microphone switch to initiate complete tuning. Tune-tone should be heard while complete tuning is in progress and cease when tuning is complete. Complete tuning should take from 2 to 60 seconds.

CAUTION

Do not operate the radio set if the REF meter reading exceeds permissible limits.

Check the RF WATTS meter for readings with the RF POWER switch in the FWD 1000 and REF 100 positions. Refer to tables 4-2 and 4-3 for typical readings.

TABLE 4-2. RF WATTS METER, TYPICAL FORWARD (FWD) POWER READINGS

MODULATION MODE	OPERATION				POWER LEVEL
	AM	U	L	TWIN	
VOICE	180	750-900	750-900	750-900	HI
	40-80	100-200	100-200	100-200	LOW
CW		600-700	600-700	600-700	HI
		100	100	100	LOW
TTY		600-700	600-700	600-700	HI
		100-200	100-200	100-200	LOW

SECTION 4.1

ORGANIZATIONAL MAINTENANCE

4.1.1 PREVENTIVE MAINTENANCE

a. Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance is the responsibility of all echelons concerned with the equipment and includes the inspection, testing, and repair or replacement of parts, subassemblies, or units that inspection and tests indicate probably would fail before the next scheduled periodic service. Preventive maintenance checks and services of the equipment at the organizational level are made at quarterly intervals unless otherwise directed by the commanding officer.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750.

4.1.2 QUARTERLY MAINTENANCE

Quarterly preventive maintenance checks and services on the equipment are required. Periodic daily and weekly services constitute a part of the quarterly preventive maintenance checks and services and must be performed concurrently. All deficiencies or shortcomings will be recorded in accordance with the requirements of TM 38-750. Perform all checks and services listed in the quarterly preventive maintenance checks and services chart (para 4.1.3) in the sequence listed.

4.1.3 Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Publications	See that all publications are complete, serviceable, and current.	DA Pam 310-4.
2	Modifications	Determine whether new applicable MWO's have been published. All URGENT MWO's must be applied immediately. All NORMAL MWO's must be scheduled.	TM 38-750 and DA Pam 310-4.
3	Spare parts	Check all spare parts (operator and organizational) for general condition and method of storage. There should be no evidence of overstock, and all shortages must be on valid requisitions.	
4	Installation	See that equipment is properly installed.	Section 2.
5	Preservation	Check all surfaces for evidence of fungus. Remove rust and corrosion, and spot-paint bare spots.	Para 4.1.4.
6	Fuses	See that all operating fuses are of correct value. Check spare fuses for proper value and quantity.	

4.1.3 Quarterly Preventive Maintenance Checks and Services Chart (cont)

Sequence No.	Item	Procedure	References
7	Lubrication	Clean and lubricate motor bearings of all blowers in the blower system.	
8	Pluckout items	Inspect seating of pluckout items. Make certain that tube clamps grip tube bases tightly.	
9	Relays	Inspect relays for dirt, corrosion, and burned contacts.	
10	Jacks	Inspect jacks for snug fit and good contact.	
11	Transformer terminals	Inspect terminals on power transformers. All nuts must be tight. There should be no evidence of dirt or corrosion.	
12	Terminal boards	Inspect terminal boards for loose connections and cracked or broken insulation.	
13	Resistors and capacitors	Inspect resistors and capacitors for cracks, blistering, or other detrimental defects.	

4.1.1 QUARTERLY PREVENTIVE MAINTENANCE CHECKS AND SERVICES CHART (cont.)

Sequence No.	Item	Procedure	References
14	Gaskets and insulators	Inspect gaskets, insulators, bushings, and sleeves for cracks, chipping, and excessive wear.	
15	Interior	Clean interior of chassis and cabinets.	

4.1.4 TOUCHUP PAINTING INSTRUCTIONS

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TM 9-213.

4.1.5 CORRECTIVE MAINTENANCE

To remove a fuse from any component of the AN/TRC-91, press in on the fuseholder and turn it in a counterclockwise direction. Remove the fuseholder and the fuse. To replace, insert the new fuse, replace the fuseholder and turn it in a clockwise direction to lock it in place.

To remove a lamp from any component except the TRAN KEY lamp and the lamps on the operator's control panel, unscrew the front glass shield of the lamp assembly. If the lamp has a screw-in base, remove the lamp by unscrewing it in a counterclockwise direction. If the lamp has a bayonet base, press in and turn the lamp in a counterclockwise direction and pull the lamp out. To replace a lamp, reverse the procedure for removing the lamp and replace the glass shield. To replace the TRAN KEY lamp or the TRANSMITTER lamps on the operator's control panel, perform the following procedure:

a. Locate the plastic wedges on both sides of the defective lamp and remove the wedges.

b. Pull the lamp assembly out to expose the lamp.

c. Remove the lamp by pressing in and turning it in a counterclockwise direction. Pull the lamp out.

d. Replace the defective lamp with a new lamp, and replace the lamp assembly and the plastic wedges.

4.1.6 TROUBLE ISOLATION

Isolation of troubles at the organizational level consists of performing operational checks to determine the faulty major unit (Table 4-4). The test equipment used at the organizational maintenance level will assist the repairman to isolate trouble. The techniques for organizational maintenance are visual inspection and operational tests. When procedures indicated are not sufficient to determine the source of the trouble, higher echelon maintenance is required.

TABLE 4-3. RF WATTS METER, REFLECTED VERSUS FORWARD POWER*

FORWARD	REFLECTED
100	1.5
400	7
700	12
1000	16

*The readings are maximum permissible reflected (REF) power indications for various values of forward (FWD) power.

4.1.7 EQUIPMENT PERFORMANCE.

The equipment performance check list is the beginning of a systematic technique designed to isolate troubles. Operate the equipment as directed in the check list, check for normal indication listed, and if an abnormal indication is obtained, follow the corrective measures outlined.

4.1.8 EMERGENCY MAINTENANCE.

No emergency maintenance is recommended. If operating and maintenance procedures outlined in preceeding paragraphs do not restore the equipment to operation, higher echelon maintenance is required.

4.1.9 PREPARATION FOR SHIPMENT OR STORAGE.

To secure the shelter for shipment or storage, perform the following steps.

a. Ensure all operating ON-OFF switches are in the OFF position.

TABLE 4-4. EQUIPMENT CHECK LIST

STEP NO.	PANEL OR UNIT	ACTION	NORMAL INDICATION	CORRECTIVE ACTION
1	Control Box C-3141/ TRC-75 (both units)	Set mode selector switch (K) to desired setting.		
2	Operators Control Panel	Monitor switch to BOTH.		
3	Same	FULL DUPLEX/HALF DUPLEX switch to HALF DUPLEX.		
4	Same	MODE switch to desired position.		
5	Same	RF POWER switch to FWD 1000.		
6	Same	POWER switch to desired setting.		
7	Same	850CPS-TTY OFF-85CPS to TTY OFF.		
8	28-volt d-c Power Supply	HIGH-OFF-LOW switch to HIGH.		
9	Circuit Breaker	Depress FREQUENCY CHANGER Reset Button.		
10	Frequency Converter	ON-OFF switch to ON.		
11	Control Box C-3141/ TRC-75 (both units)	Turn ON-OFF switch (L) to ON.		
12	Same	Turn FREQ KC dials (N), (F), (R), and (S) to desired operating frequency.	a. Red TRANSMITTER light on Operators Control Panel lights. b. 800-cycle tune-tone heard in headset or speaker. c. 800-cycle tune-tone, stops. Yellow TRANSMITTER lamp lights.	a. Equipment not cycling. Rotate (N) knob one digit and return to original setting. Higher echelon maintenance required. b. Red TRANSMITTER lamp remains lighted. 800-cycle tune-tone stays on. Remove main power cable to the CU-749/TRC-75. If tune-tone ceases, replace the CU-749/ TRC-75. If tune-tone is still heard, replace T-730/TRC-75. Higher echelon maintenance required if tune-tone exists after replacement.
13	Operators Panel	Depress microphone button.	800-cycle tune-tone is heard. RF WATTS meter should read 100 watts for 2 to 60 seconds. Yellow TRANSMITTER lamp extinguishes and	If tune-tone remains on for 2 minutes, the T-730/TRC-75 is disabled. Wait 15 seconds and recycle the equipment then depress microphone. If tune-

TABLE 4-4 EQUIPMENT CHECK LIST (Cont)

STEP NO.	PANEL OR UNIT	ACTION	NORMAL INDICATION	CORRECTIVE ACTION
			green READY lamp lights.	tone is still present, higher echelon maintenance is required.
14	Operators Control Panel	Depress microphone button, send test transmission by talking into microphone.	RF WATTS meter should vary.	Replace the C-2848/TRC-75. Repeat step 12. If meter does not vary at an audio rate, higher echelon maintenance is required.
15	Control Box C-3141/TRC-75	Select a WWV frequency of 2.5, 5.0, 10.0, 15.0, 20.0, or 25.0 megacycles. Set modulation selector to U.	Tune-tone should be heard in headset for up to 20 seconds.	Refer to step 11.
16		Monitor the WWV frequency selected in step 1.	Proceed to step 16.	Attempt reception at a different frequency. Replace R-761/ARC-58. If unable to receive, higher echelon maintenance is required.
17	Operators Panel	Remove the headset. The speaker is in operation with the headset removed. Turn up speaker and headset volume.	WWV monitored frequency should be heard.	Check operators controls. Check speaker connections. Refer to step 15.
18		Select a frequency and mode of operation on which teletype reception may be made. On Operator's Control Panel set MODE switch to desired setting. 850 CPS-TTY OFF-85 CPS switch to either 850 CPS or 85 CPS. On TT-98/FG set TTY POWER to ON.	Teletypewriter should operate.	The CV-786/TRC-75 or C-8102 modem is malfunctioning. Higher echelon maintenance is required.

b. Remove all jackfield connections, headset and microphone connections and store in accessory box.

c. Ensure primary power source is turned off and remove power cable connecting power source to Power Entry Panel. Store cable on reel.

d. Dismantle ground mounted antenna. Dismantle in reverse order as described in paragraph 2.3.3. Place ground mounted antenna installation elements in canvas bag and strap to right-hand wall.

e. Dismantle shelter mounted antenna. Dismantle in reverse order as described in paragraph 2.3.2. Place shelter mounted antenna installation elements in canvas bag and strap to right-hand wall.

f. Place cable reels inside shelter and bolt to floor.

g. Place ground rods under clamps on top of shelter and secure clamps with bolts.

h. Place storage box on floor of shelter and bolt to floor. Place tools in box. Invert operators chair and place on box. Secure to box with straps. Place wastepaper receptacle on top of chair and secure to chair with straps. Refer to figure 4-1.

i. Close outside ventilator covers and secure access door.

Figure 4-1. Equipment Stored for Shipment

section 5

illustrations

Schematic diagrams of all AN/TRC-75 units are contained in NAVMC ELECT 2041. This section contains schematic diagrams of all units not covered by the NAVMC ELECT 2041, and interconnecting wiring TO-FROM charts for all units of the AN/TRC-91 system. Tables 5-1 and 5-2 refer to AN/TRC-91 Application Diagram, figure 5-2, part 1.

TABLE 5-1. AUDIO (BLACK) TTY JACKFIELD DESIGNATIONS

JACK	FUNCTION
JB 1U	USB OUT 1 (AUDIO)
JB 1L	RY-1 (AUDIO)
JB 2U	LSB OUT 1 (AUDIO)
JB 2L	RY-1 (AUDIO)
JB 3U	USB OUT 2 (AUDIO)
JB 3L	RY-1 (AUDIO)
JB 4U	LSB OUT 2 (AUDIO)
JB 4L	RY-1 (AUDIO)
JB 5U	USB IN (AUDIO)
JB 5L	RY-3 (AUDIO)
JB 6U	LSB IN (AUDIO)
JB 6L	RY-3 (AUDIO)
JB 7U	RMT TEL (AUDIO)
JB 7L	GRA-6 (AUDIO)
JB 8U	MULTIPLE (AUDIO)
JB 8L	MULTIPLE (AUDIO)
JB 9U	MULTIPLE (AUDIO)

TABLE 5-1. AUDIO (BLACK) TTY JACKFIELD DESIGNATIONS (Cont)

JACK	FUNCTION
JB 9L	MULTIPLE (AUDIO)
JB 10U	MULTIPLE (AUDIO)
JB 10L	MULTIPLE (AUDIO)
JB 11V	MULTIPLE (AUDIO)
JB 11L	MULTIPLE (AUDIO)
JB 12U	MULTIPLE (AUDIO)
JB 12L	MULTIPLE (AUDIO)
JB 13U	CONV 850 CYCLE IN (AUDIO)
JB 13L	CONV 850 CYCLE IN MON (AUDIO)
JB 14U	CONV 850 CYCLE OUT (TTY)
JB 14L	CONV 850 CYCLE OUT MON (TTY)
JB 15U	CONV 85 CYCLE IN (AUDIO)
JB 15L	CONV 85 CYCLE IN MON (AUDIO)
JB 16U	CONV 85 CYCLE OUT (TTY)
JB 16L	CONV 85 CYCLE OUT MON (TTY)
JB 17U	KEYER 850 CYCLE OUT (AUDIO)
JB 17L	KEYER 850 CYCLE OUT MON (AUDIO)
JB 18 U	KEYER 850 CYCLE IN (TTY)
JB 18L	KEYER 850 CYCLE IN MON (TTY)
JB 19U	KEYER 85 CYCLE OUT (AUDIO)
JB 19L	KEYER 85 CYCLE OUT MON (AUDIO)
JB 20U	KEYER 85 CYCLE IN (TTY)
JB 20L	KEYER 85 CYCLE IN MON (TTY)

TABLE 5-1. AUDIO (BLACK) TTY JACKFIELD DESIGNATIONS (Cont)

JACK	FUNCTION
JB 21U	SPARE
JB 21L	SPARE
JB 22U	SPARE
JB 22L	SPARE
JB 23U	SPARE
JB 23L	SPARE
JB 24U	REMOTE TTY Tx (TTY)
JB 24L	REMOTE TTY Rx (TTY)
JB 25U	RY-5 Tx (TTY)
JB 25L	RY-5 Rx (TTY)
JB 26U	SIG SPARE (AUDIO)
JB 26L	KEY (AUDIO)

TABLE 5-2. DC (RED) TTY JACKFIELD DESIGNATIONS

JACK	FUNCTION
JR 1	LINE
JR 2	LPG
JR 3	LPG
JR 4	TD KYBD
JR 5	RCVE LINE
JR 6	RVCV LPG
JR 7	RVCV LPG
JR 8	RVCV LPG
JR 9	MISC METER
JR 10	
JR 11	
JR 12	MISC REPERF

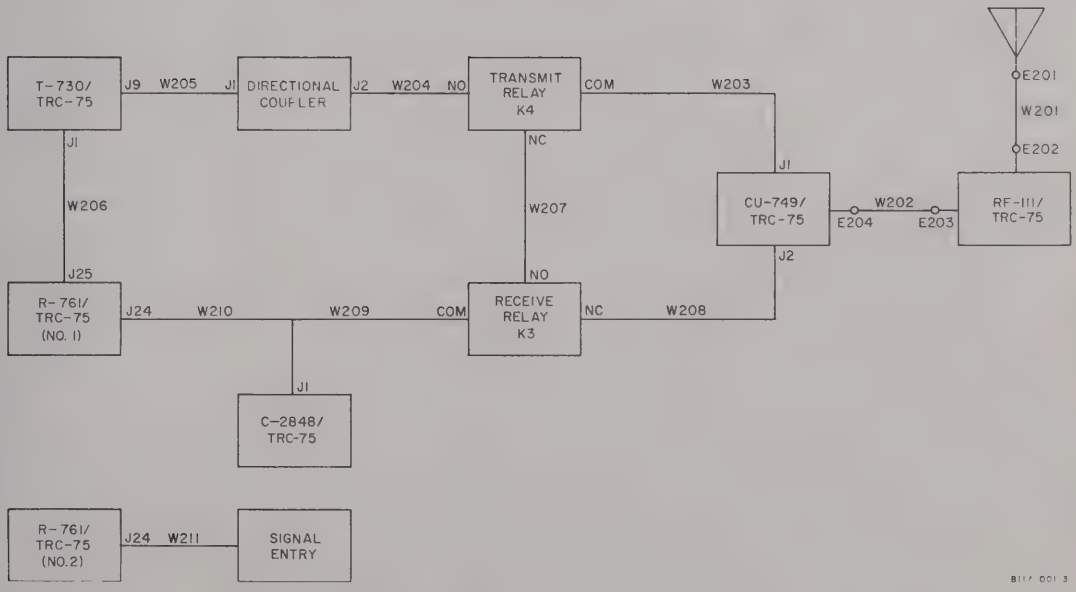


Figure 5-1. RF Cabling

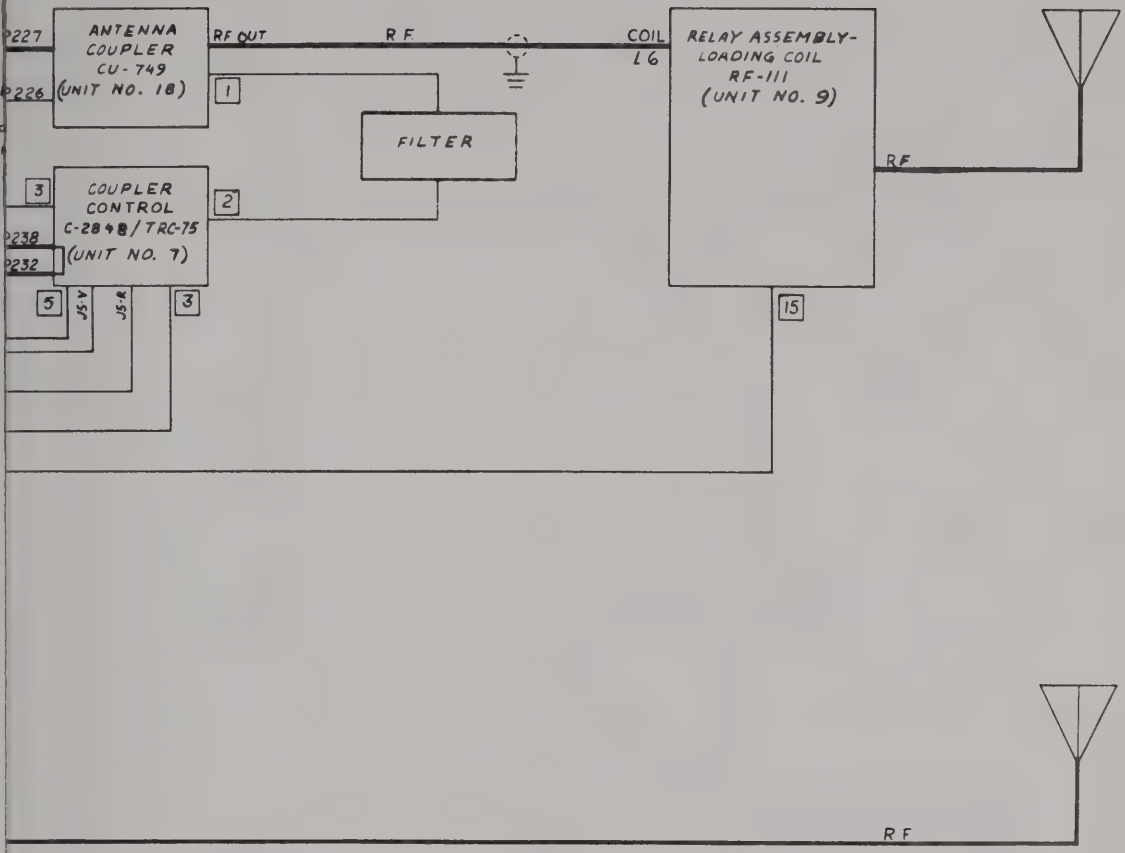
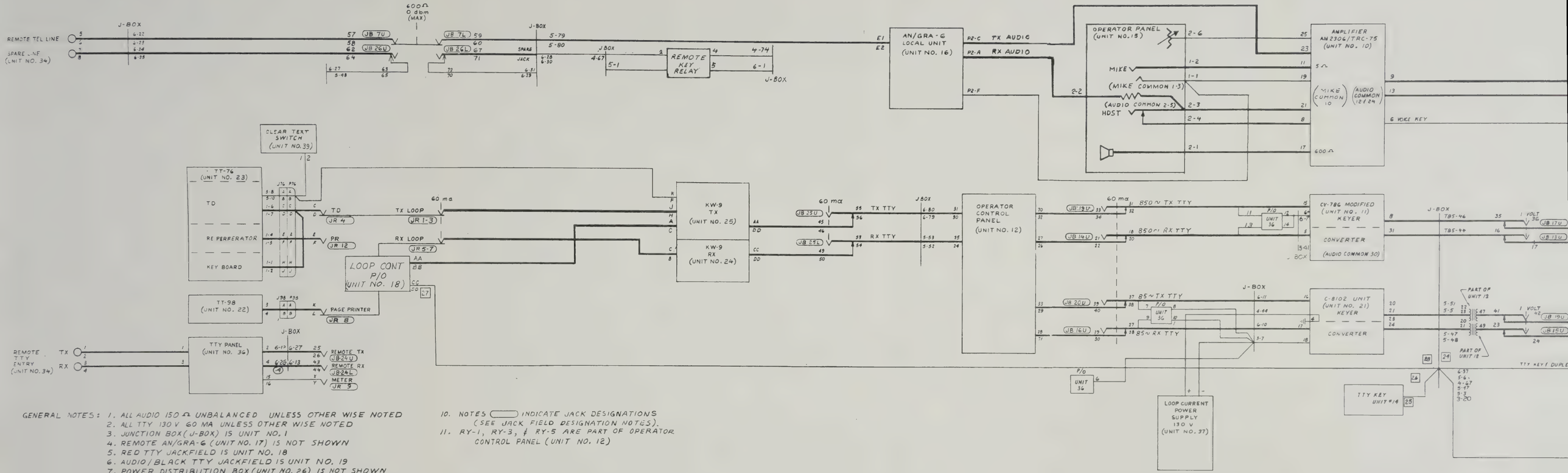


Figure 5-2. AN/TRC-91 Application Diagram (Sheet 1 of 2)



GENERAL NOTES:

1. ALL AUDIO 150 Ω UNBALANCED UNLESS OTHER WISE NOTED
2. ALL TTY 130 V 60 MA UNLESS OTHER WISE NOTED
3. JUNCTION BOX (J-BOX) IS UNIT NO. 1
4. REMOTE AN/GRA-6 (UNIT NO. 17) IS NOT SHOWN
5. RED TTY JACKFIELD IS UNIT NO. 18
6. AUDIO/BLACK TTY JACKFIELD IS UNIT NO. 19
7. POWER DISTRIBUTION BOX (UNIT NO. 26) IS NOT SHOWN
8. 28 VDC POWER SUPPLY (UNIT NO. 27) IS NOT SHOWN
9. 60 TO 400 CPS CONVERTER (UNIT NO. 28) IS NOT SHOWN
10. NOTES ( ) INDICATE JACK DESIGNATIONS (SEE JACK FIELD DESIGNATION NOTES).
11. RY-1, RY-3, & RY-5 ARE PART OF OPERATOR CONTROL PANEL (UNIT NO. 12)

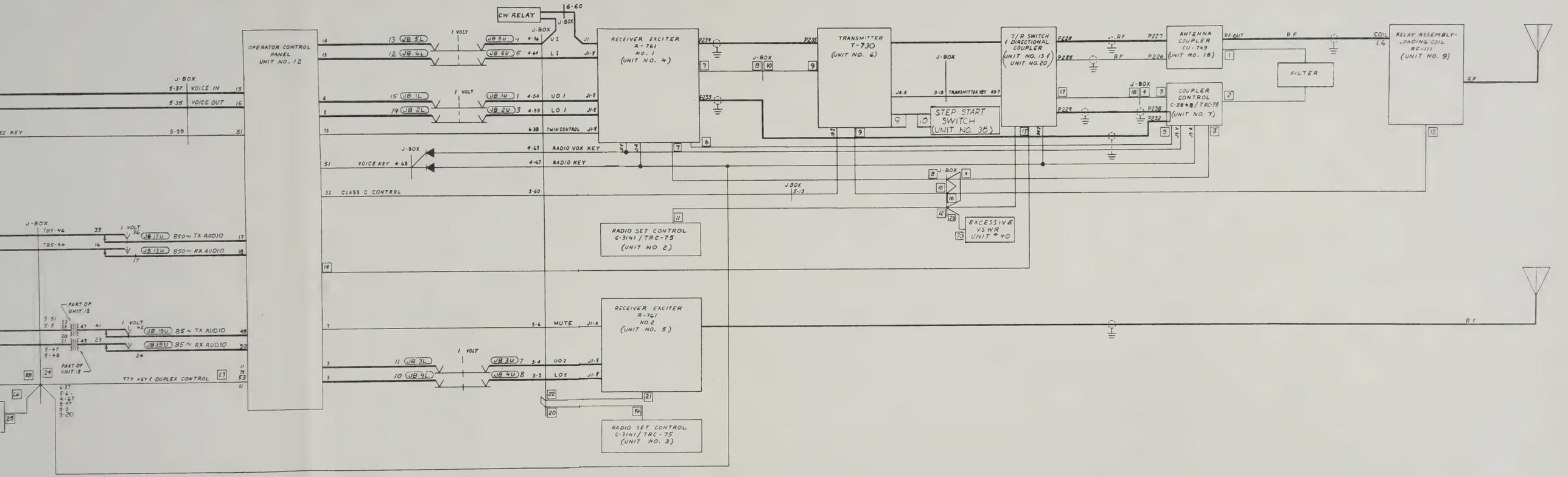

OPERATOR CONTROL PANEL UNIT NO. 12
CW RELAY
RECEIVER EXCITER R-761 NO. 1 (UNIT NO. 4)
TRANSMITTER T-730 (UNIT NO. 6)
T/R SWITCH / DIRECTIONAL COUPLER (UNIT NO. 13 / UNIT NO. 20)
ANTENNA COUPLER CU-749 (UNIT NO. 18)
COUPLER CONTROL C-2848/TRC-75 (UNIT NO. 7)
FILTER
RELAY ASSEMBLY-LOADING COIL RF-111 (UNIT NO. 9)
STEP START SWITCH (UNIT NO. 38)
EXCESSIVE VSWR UNIT # 40
RADIO SET CONTROL C-3141/TRC-75 (UNIT NO 2)
RADIO SET CONTROL C-3141/TRC-75 (UNIT NO. 3)
RECEIVER EXCITER R-761 NO.2 (UNIT NO. 5)
J-BOX
VOICE IN
VOICE OUT
CE KEY
VOICE KEY 4-68
RADIO VOX KEY
RADIO KEY
CLASS C CONTROL
TWIN CONTROL
MUTE
TTY KEY / DUPLEX CONTROL
850 ~ TX AUDIO
850 ~ RX AUDIO
85 ~ TX AUDIO
85 ~ RX AUDIO
PART OF UNIT 12
RF
COIL L6
RF OUT

Figure 5-2. AN/TRC-91 Application Diagram (Sheet 1 of 2)

[1]

CU-749/TRC-75

J3

a	TAP A
E	DISCR UNBALAN
T	SWR METER
A	PHASING DISCR
C	LOADING DISCR
D	SERVO GROUND
R	TRANSFER RELA
h	TRANSMITTER D
j	TRANSMITTER K
d	SERVO POWER K
g	TAP RATE
f	COIL RATE
S	COIL HOME
P	TAP HOME
L	CONTROL B
M	CONTROL C
N	CONTROL D
K	CAPACITOR HOM
e	CAPACITOR MOT
y	COIL B
c	COIL A
J	COIL LIMIT SW
H	A. C. POWER
Z	TAB LIMIT SWI
b	TAP B

[3]

C-2848/TRC-75(7)

P5

V	VOX KEY
W	AM CONTROL
R	KEY
D	CONTROL D
C	CONTROL C

[23]

		[24]
51	VOX KEY	5-59
72	DUPLEX CONTROL	6-37

[25] TTY KEY (14) — [26] J-Box(1)

S2		TB-
COMMON #1	GROUND	5-47
COMMON #2	KEY	4-67
D S	28V.	5-3
N. C. #1	P/A CONT.	6-37

[27] LOOP CONTROL (18) — [28] J-Box(1)

DD	RX/TX	5-59
BB	28V.	5-61
CC	28V.	5-61

[29] J-BOX — [30] UNIT # 40

4-20	REFLECTED POWER	TB1-13
5-23	READY LIGHT	TB1-12
5-1	28 VDC	TB1-10
6-2	GROUND	XDS1
4-14	FAULT	S1

REV "A" CHG TB6-25 TO READ TB6-26

AN/TRC-91 APPLICATION DIAGRAM

Figure 5-2. AN/TRC-91 Application Diagram (Sheet 2 of 2)

[1]

CU-749/TRC-75

J3

a	TAP A	a
E	DISCR UNBALANCE	E
T	SWR METER	T
A	PHASING DISCR	A
C	LOADING DISCR	C
D	SERVO GROUND	D
R	TRANSFER RELAY	R
h	TRANSMITTER DISABLE	h
j	TRANSMITTER KEY	j
d	SERVO POWER KEYED	d
g	TAP RATE	g
f	COIL RATE	f
S	COIL HOME	S
P	TAP HOME	P
L	CONTROL B	L
M	CONTROL C	M
N	CONTROL D	N
K	CAPACITOR HOME	K
e	CAPACITOR MOTOR	e
y	COIL B	y
c	COIL A	c
J	COIL LIMIT SWITCH	J
H	A. C. POWER	H
Z	TAB LIMIT SWITCH	Z
b	TAP B	b

[2]

C-2848/TRC-75(7)

J20

[3]

C-2848/TRC-75(7)

P5

V	VOX KEY	4-69
W	AM CONTROL	4-2
R	KEY	4-67
D	CONTROL D	4-10
C	CONTROL C	4-12

[4]

J-Box (1)

T B

[3]

T	TUNE CONTROL	4-66
U	FAULT	4-14
S	OFF-ON	4-16
X	TUNE IND. TONE	4-65
B	CONTROL B	4-18
a	400 CYCLE PHASE A	3-11
A	TUNE HOLD	5-16
J	HV ON-OFF	5-17
H	TUNE POWER	5-18
L	+28 V. D. C.	5-1
P	TUNE INDICATE	5-23
E	KEY INTERLOCK	5-24
F	TRANSFER RELAY	5-25
N	SPARE	5-26
K	SPARE	5-27
G	GND.	4-42

[5]

C-2848/TRC-75(7)

J5

Z	SWR METER	4-20

[6]

J-Box (1)

[7]

R-761/ARC-58(4)

P1

b	SIDEBAND CONTROL	6-77
K	CONTROL K	4-27
F	CONTROL F	4-26
G	CONTROL G	4-25
H	CONTROL H	4-24
J	CONTROL J	4-23
E	CONTROL E	4-22
L	CONTROL L	4-21
v	R F GAIN	4-19
Z	AUDIO COMMON	4-77
c	AUDIO UO	4-54

[8]

J-Box (1)

[7]

y	AUDIO UO	4-55
d	TWIN CONTROL	6-38
a	AUDIO UI	6-60
A	CONTROL A	4-7
n	SIDETONE GATE	4-57
P	CONTROL P	4-58
N	CONTROL N	4-59
M	CONTROL M	4-60
f	AM-ALC	4-61
k	ACC	4-62
m	ALC	4-63
EE	SHIELD GND.	4-41
u	AUDIO LI	4-64
BB	PHASE A	3-9
HH	PHASE A	3-9
B	CONTROL B	4-17
X	TUNE IND. TONE	4-65
S	OFF-ON	4-15
U	FAULT	4-13
T	TUNE CONTROL	4-66
C	CONTROL C	4-11
D	CONTROL D	4-9
R	KEY	4-67
W	AM CONTROL	4-2
V	VOX KEY	4-69
t	SPARE	4-71
w	SPARE	4-72
Y	SPARE	4-73

[9]

T-730/TRC-75(6)

J8

DD	
CC	
HH	
BB	
AA	

[8]

[10]

UNIT #38

R3-1

R3-1

R2-1

R2-1

R1-1

[9]

GG

r	TUNE LIGHT	
q	P/A CONTROL	
p	POWER HI-LO	
EE	SHIELD GND.	
u	SPARE	
Y	SPARE	
A	CONTROL A	
n	SIDETONE GATE	
P	CONTROL P	
N	CONTROL N	
M	CONTROL M	
f	AM-ALC	
k	ACC	
m	ALC	
t	SPARE	
w	SPARE	
D	CONTROL D	
C	CONTROL C	
T	TUNE CONTROL	
U	FAULT	
S	OFF-ON	
R	TRANSMITTER KEY	
B	CONTROL B	
x	400 CYCLE PHASE A	
e	TUNE HOLD	
h	TUNE POWER	
l	HV ON-OFF	

[10]

J-Box(1)

	5-12
	5-13
	5-14
	4-42
	5-19
	5-20
	4-7
	4-57
	4-58
	4-59
	4-60
	4-61
	4-62
	4-63
	5-21
	5-22
	4-9
	4-11
	4-66
	4-13
	4-15
	5-15
	4-17
	3-11
	5-16
	5-18
	5-17

[11]

C-3141/TRC-75(2)

P1

d	TWIN CONT.	4-1
x	400 CYCLE PHASE A	3-10
W	AM CONTROL	4-2
g	+28 V. D. C.	3-20
j	+28 V. D. C.	5-20

[12]

J-Box (1)

[11]

p	CONTROL U	4-3
A	CONTROL A	4-7
D	CONTROL D	4-9
w	SPARE	4-4
C	CONTROL C	4-11
f	FAULT	4-13
s	OFF-ON	4-15
B	CONTROL B	4-17
FF	SHIELD GND.	4-41
Y	SPARE	4-5
u	SPARE	4-6
v	R F GAIN	4-19
z	S.W.R. METER	4-20
L	CONTROL L	4-21
E	CONTROL E	4-22
J	CONTROL J	4-23
H	CONTROL H	4-24
G	CONTROL G	4-25
F	CONTROL F	4-26
K	CONTROL K	4-27
b	SIDEBAND CONT.	4-28

[12]

[13]

DIRECTIONAL COUPLER(20)

1	POWER METER
3	POWER METER
5	GROUND

[14]

J-Box

	5-58
	5-57
	3-5

[15]

RF-111/TRC-75-TB2(9)

1	CONTROL A	4-8
2	CONTROL B	4-18
3	CONTROL E	4-3
4	28V.	3-20

[16]

J-Box(1)

[17]

RELAY ASSEMBLY(13)

K2-2(note K2 mounted	
K2-6 KEY	
K3-2	
K2-10 TRANSFER CONTRO	
K4-2 KEY	
K4-4 KEY	
K4-5 GND.	

[19]

C-3141/TRC-75(3)

J1

d	TWIN CONTROL	
x	400 CYCLE PHASE	
W	AM CONTROL	
g	+28 V. D. C.	
j	+28 V. D. C.	
F	CONTROL F	
G	CONTROL G	
K	CONTROL K	
A	CONTROL A	
H	CONTROL H	
b	SB CONTROL	
z	SPARE	
u	SPARE	
Y	SPARE	
w	SPARE	
D	CONTROL D	
C	CONTROL C	
f	FAULT	
s	OFF-ON	
B	CONTROL B	
FF	SHIELD GND.	
v	R F GAIN	
L	CONTROL L	
E	CONTROL E	
J	CONTROL J	

8

4-55
6-38
6-60
4-7
4-57
4-58
4-59
4-60
4-61
4-62
4-63
4-41
4-64
3-9
3-9
4-17
4-65
4-15
4-13
4-66
4-11
4-9
4-67
4-2
4-69
4-71
4-72
4-73

10

UNIT #38
R3-1
R3-1
R2-1
R2-1
R1-1

9

GG

		10
		R1-1
		J-Box(1)
r	TUNE LIGHT	5-12
q	P/A CONTROL	5-13
p	POWER HI-LO	5-14
EE	SHIELD GND.	4-42
u	SPARE	5-19
Y	SPARE	5-20
A	CONTROL A	4-7
n	SIDETONE GATE	4-57
P	CONTROL P	4-58
N	CONTROL N	4-59
M	CONTROL M	4-60
f	AM-ALC	4-61
k	ACC	4-62
m	ALC	4-63
t	SPARE	5-21
w	SPARE	5-22
D	CONTROL D	4-9
C	CONTROL C	4-11
T	TUNE CONTROL	4-66
U	FAULT	4-13
S	OFF-ON	4-15
R	TRANSMITTER KEY	5-15
B	CONTROL B	4-17
x	400 CYCLE PHASE A	3-11
e	TUNE HOLD	5-16
h	TUNE POWER	5-18
l	HV ON-OFF	5-17

11

C-3141/TRC-75(2)

12

J-Box (1)

P1

d	TWIN CONT.	4-1
x	400 CYCLE PHASE A	3-10
N	AM CONTROL	4-2
g	+28 V. D. C.	3-20
j	+28 V. D. C.	3-20

11

		12
p	CONTROL U	4-3
A	CONTROL A	4-7
D	CONTROL D	4-9
w	SPARE	4-4
C	CONTROL C	4-11
f	FAULT	4-13
s	OFF-ON	4-15
B	CONTROL B	4-17
FF	SHIELD GND.	4-41
Y	SPARE	4-5
u	SPARE	4-6
v	R F GAIN	4-19
z	S.W.R. METER	4-20
L	CONTROL L	4-21
E	CONTROL E	4-22
J	CONTROL J	4-23
H	CONTROL H	4-24
G	CONTROL G	4-25
F	CONTROL F	4-26
K	CONTROL K	4-27
b	SIDEBAND CONT.	4-28

13

DIRECTIONAL COUPLER(20)

14

J-Box

1	POWER METER	5-58
3	POWER METER	5-57
5	GROUND	3-5

15

RF-111/TRC-75-TB2(9)

16

J-Box(1)

1	CONTROL A	4-8
2	CONTROL B	4-18
3	CONTROL E	4-3
4	28V.	3-20

17

RELAY ASSEMBLY(13)

18

J-Box(1)

K2-2(note K2 mounted in unit #1) TUNE IND.	5-23
K2-6 KEY	5-24
K3-2	5-70
K2-10 TRANSFER CONTROL	5-25
K4-2 KEY	4-67
K4-4 KEY	5-71
K4-5 GND.	3-3

19

C-3141/TRC-75(3)

20

J-Box(1)

J1

d	TWIN CONTROL	4-29
x	400 CYCLE PHASE A	3-10
N	AM CONTROL	4-30
g	+28 V. D. C.	3-19
j	+28 V. D. C.	3-19
F	CONTROL F	4-47
G	CONTROL G	4-46
K	CONTROL K	4-48
A	CONTROL A	4-31
H	CONTROL H	4-45
b	SB CONTROL	4-49
z	SPARE	4-50
u	SPARE	4-51
Y	SPARE	4-52
w	SPARE	4-53
D	CONTROL D	4-32
C	CONTROL C	4-33
f	FAULT	4-34
s	OFF-ON	4-35
B	CONTROL B	4-36
FF	SHIELD GND.	4-41
v	R F GAIN	4-37
L	CONTROL L	4-38
E	CONTROL E	4-39
J	CONTROL J	4-40

21

R-761/ARC-58

22

J-Box

J1

b	SIDEBAND CONTROL	6-76
K	CONTROL K	4-48
F	CONTROL F	4-47
G	CONTROL G	4-46
H	CONTROL H	4-45
J	CONTROL J	4-40
E	CONTROL E	4-39
L	CONTROL L	4-38
v	R F GAIN	4-37
Z	AUDIO COMMON	4-77
c	AUDIO UO	5-4
y	AUDIO LO	5-5
d	TWIN CONTROL	4-29
A	CONTROL A	4-31
u	SPARE	5-10
BB	400 CYCLE PHASE A	3-9
HH	400 CYCLE PHASE A	3-10
B	CONTROL B	4-36
S	ON-OFF	4-35
U	FAULT	4-34
C	CONTROL C	4-33
D	CONTROL D	4-32
R	KEY	5-6
W	AM CONTROL	5-7
EE	SHIELD GROUND	4-42
t	SPARE	5-8
w	SPARE	5-9
Y	SPARE	5-11

23

UNIT #12

24

J-Box(1)

P1

7	MUTE	TB- 5-6
11	TR SWITCH	5-47
53	TTY HDX CONTROL	5-61

23

51	VOX KEY	5-59
72	DUPLEX CONTROL	6-37

25

TTY KEY (14)

26

J-Box(1)

S2

		TB-
COMMON #1	GROUND	5-47
COMMON #2	KEY	4-67
D S	28V.	5-3
N. C. #1	P/A CONT.	6-37

27

LOOP CONTROL (18)

28

J-Box(1)

DD	RX/TX	5-59
BB	28V.	5-61
CC	28V.	5-61

29

J-BOX

30

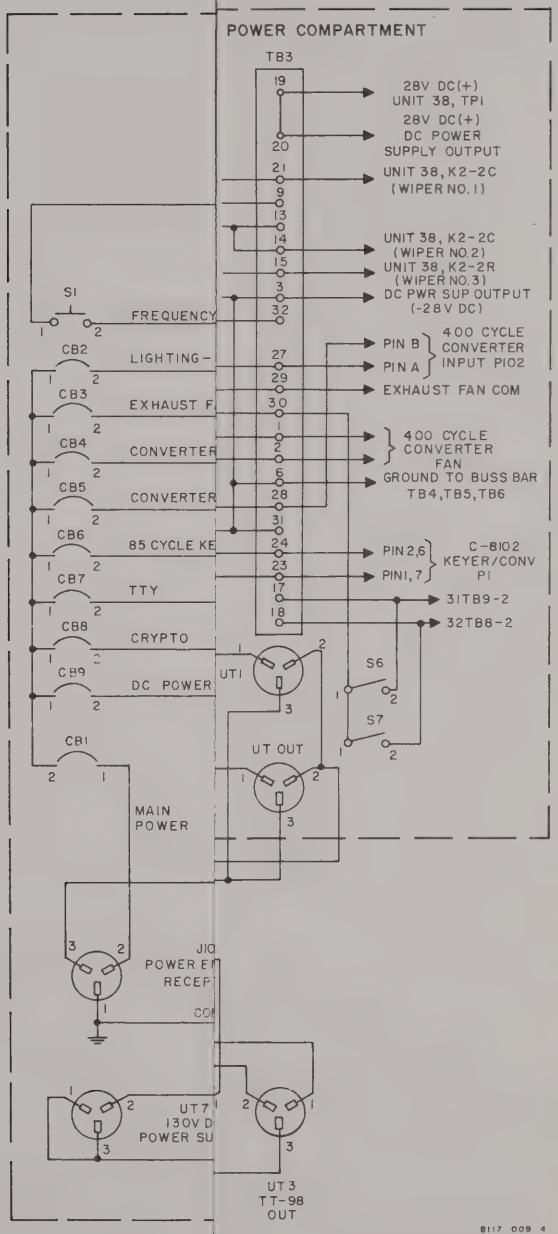
UNIT #40

9-20	REFLECTED POWER	TB1-13
5-23	READY LIGHT	TB1-12
5-1	28 VDC	TB1-10
6-2	GROUND	XDS1
4-14	FAULT	S1

REV "A" CHG TB6-25 TO READ TB6-26

AN/TRC-91 APPLICATION DIAGRAM

Figure 5-2. AN/TRC-91 Application Diagram (Sheet 2 of 2)



stribution Panel, Schematic Diagram

Figure 5-6. Operators Control Panel, Schematic Diagram

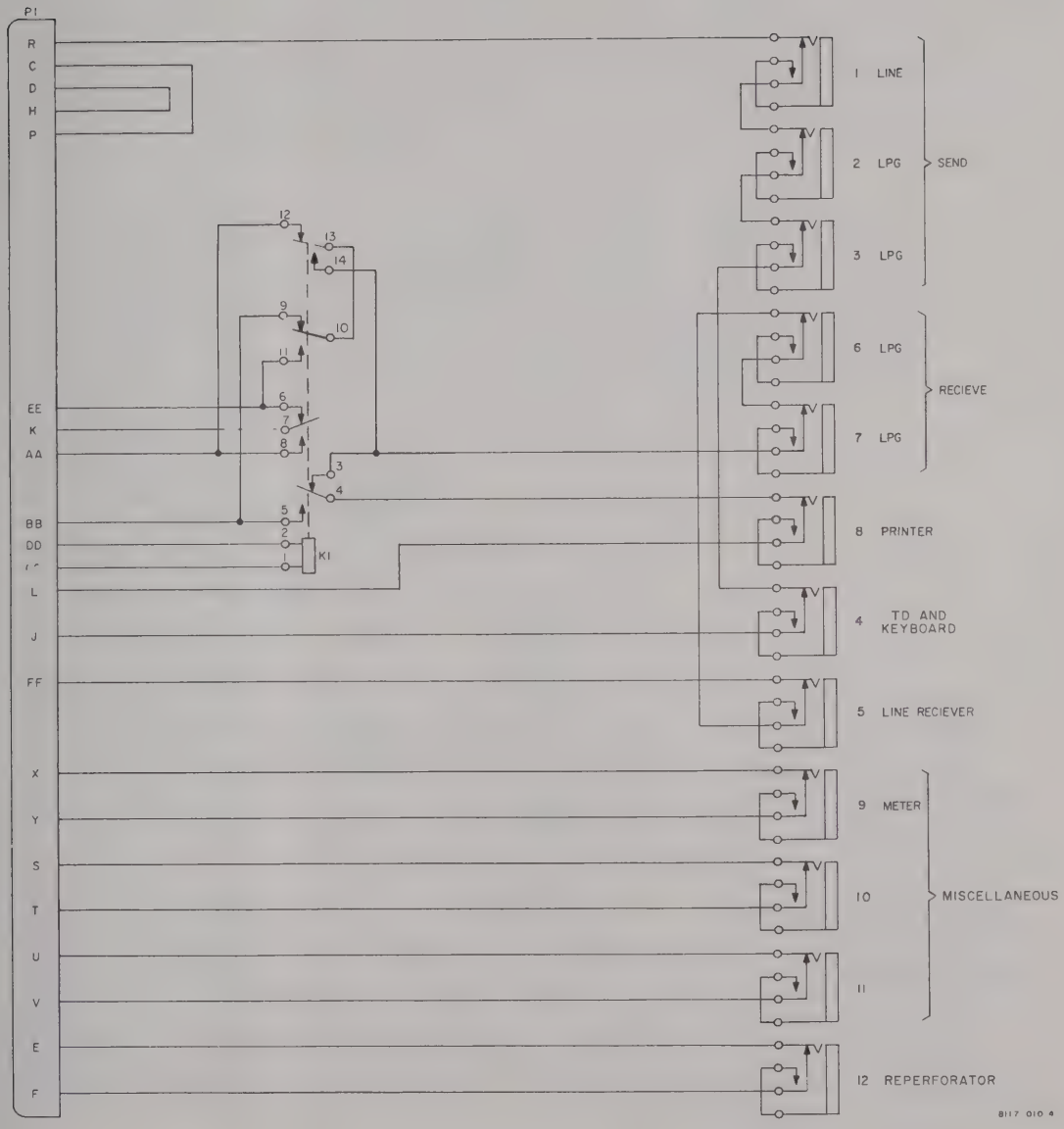


Figure 5-4. DC (Red) TTY Patch Panel, Schematic Diagram

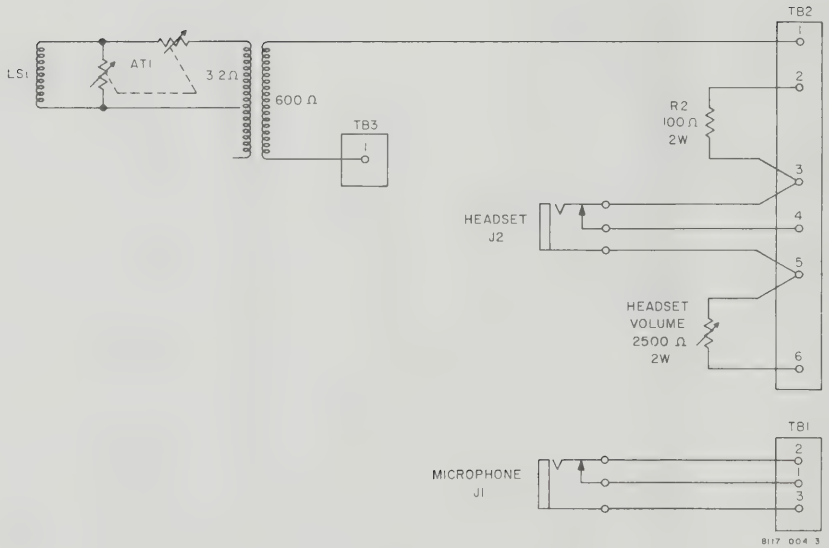


Figure 5-5. Operators Panel, Schematic Diagram

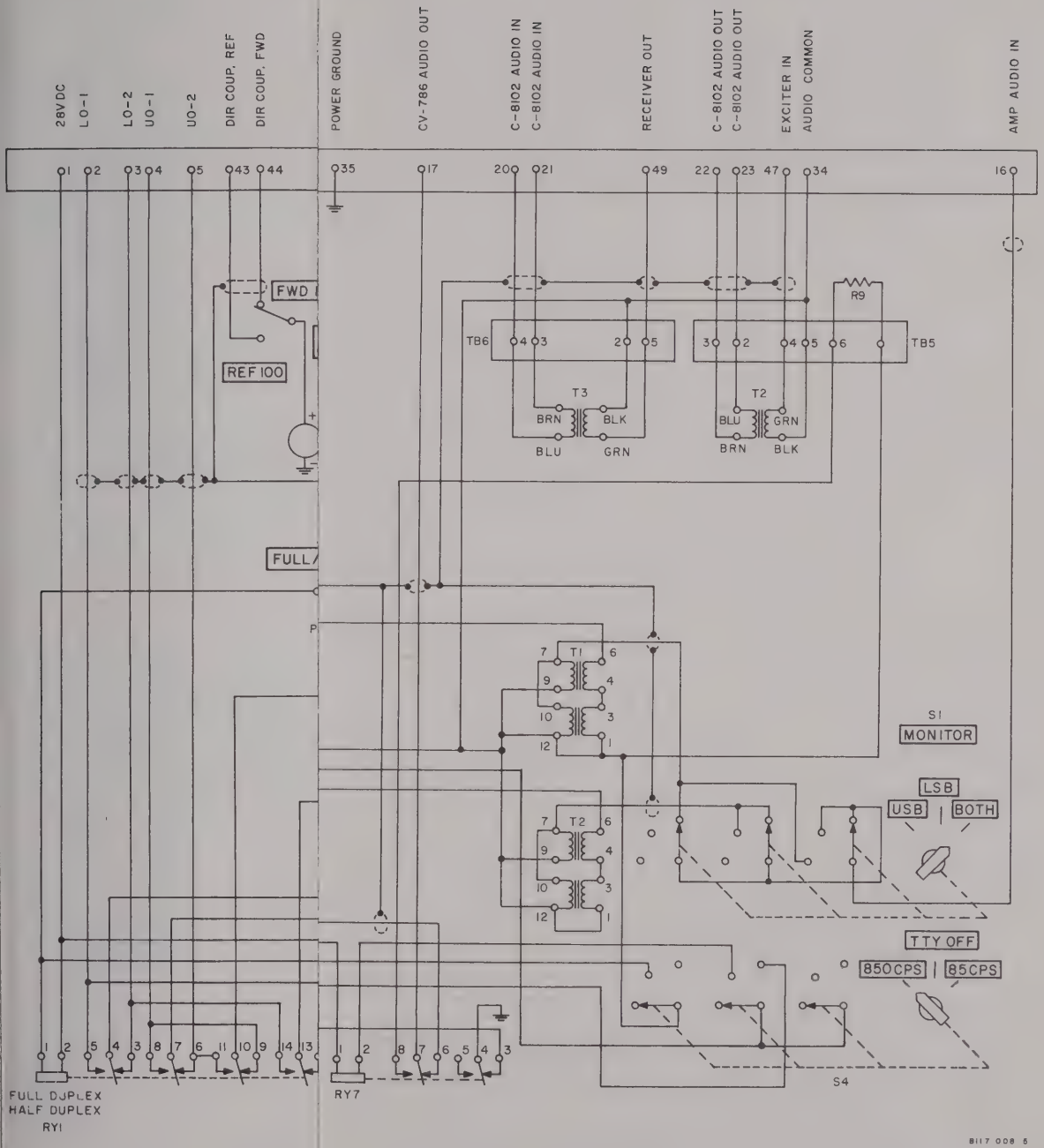


Figure 5-6. Operators Control Panel, Schematic Diagram

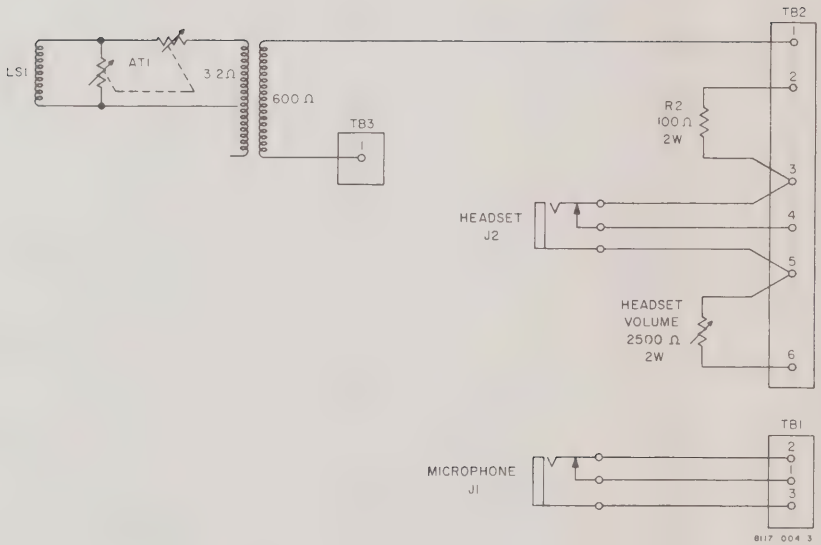


Figure 5-5. Operators Panel, Schematic Diagram

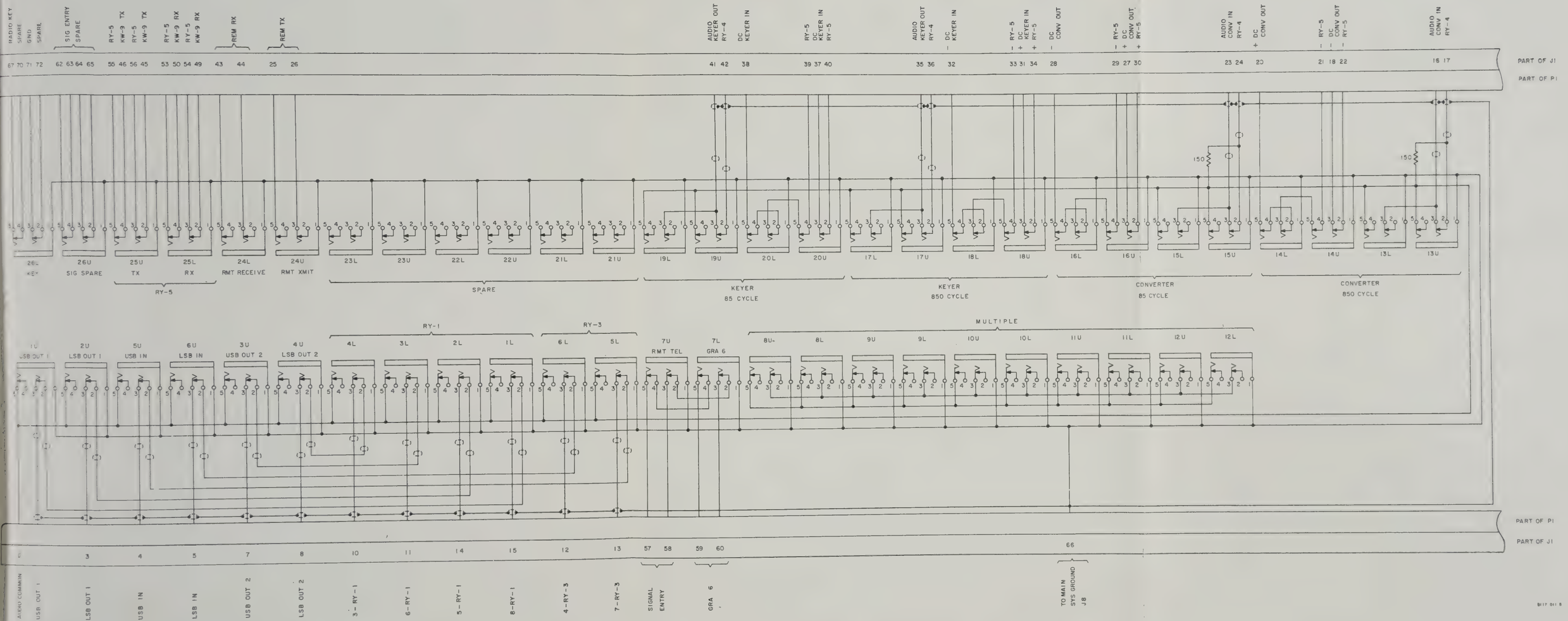


Figure 5-7. Audio (Black) TTY Patch Panel, Schematic Diagram

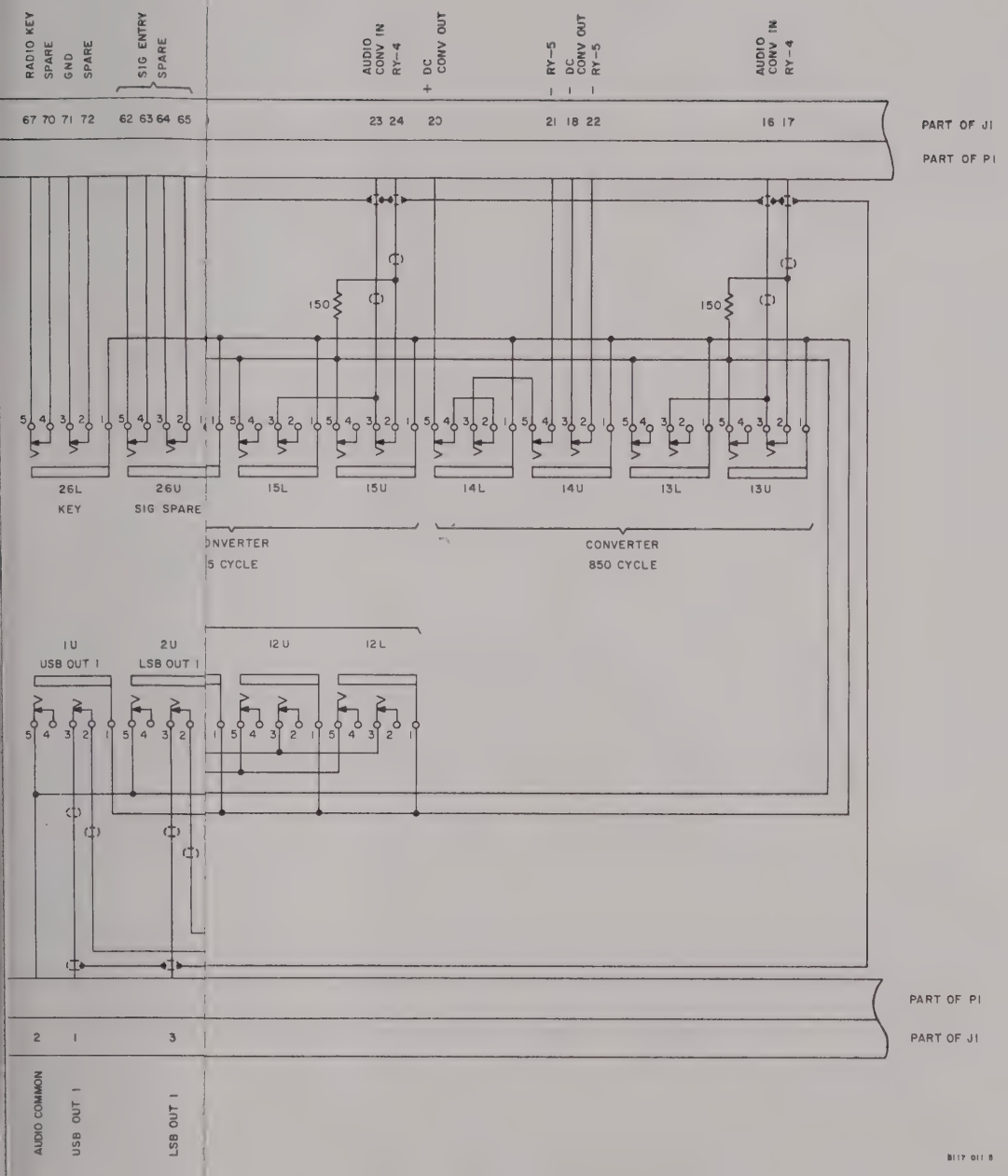


Figure 5-7. Audio (Black) TTY Patch Panel, Schematic Diagram

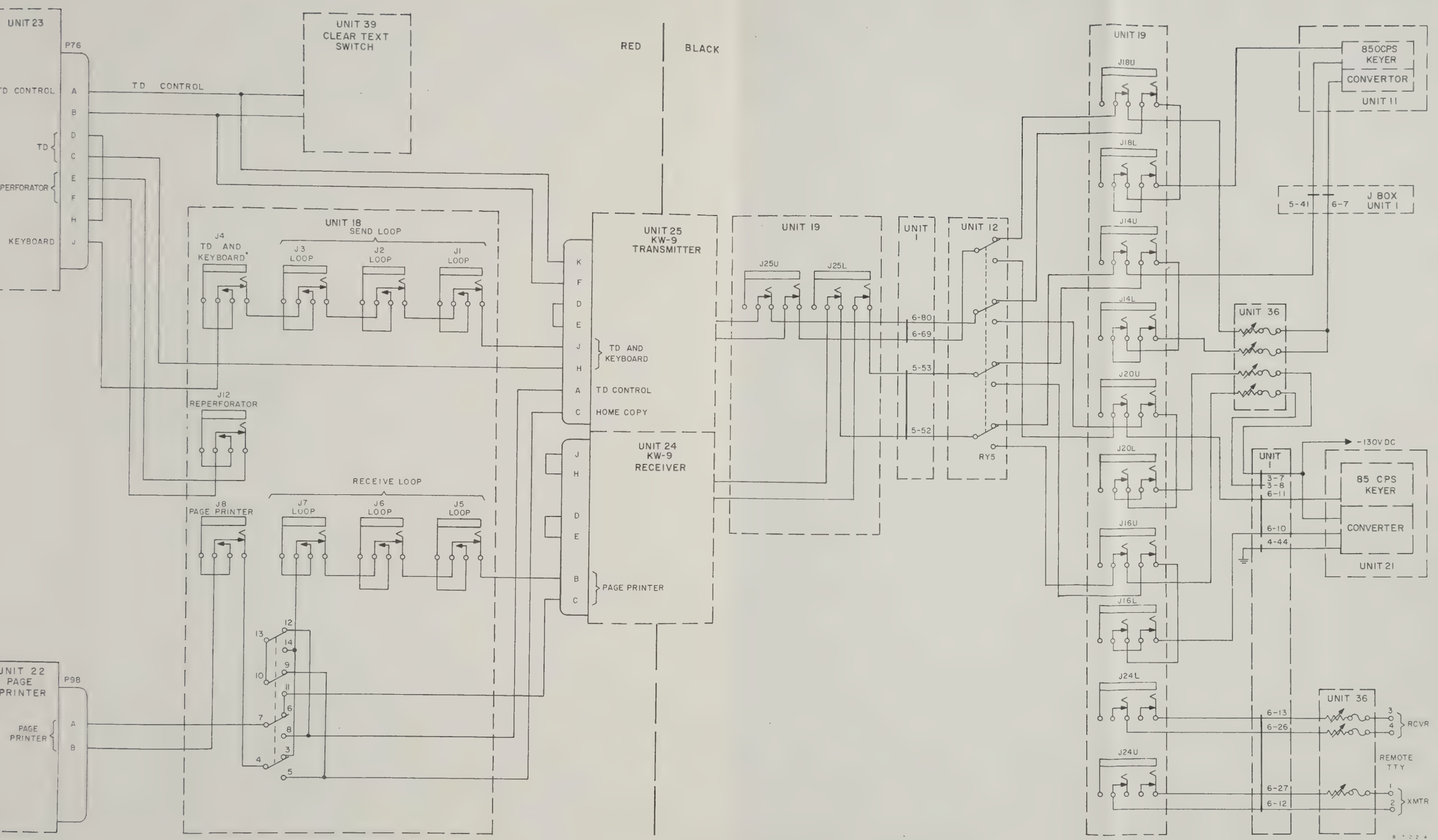


Figure 5-9. TTY Functional Diagram

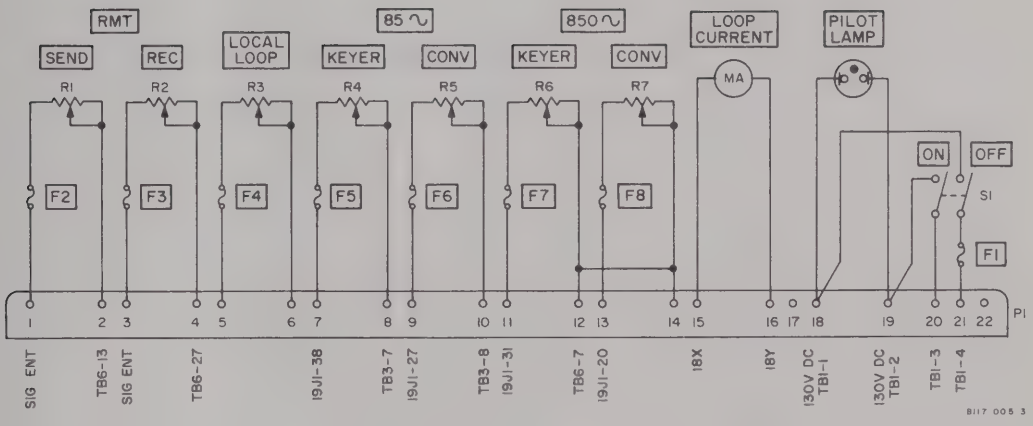


Figure 5-8. TTY Control Panel, Schematic Diagram

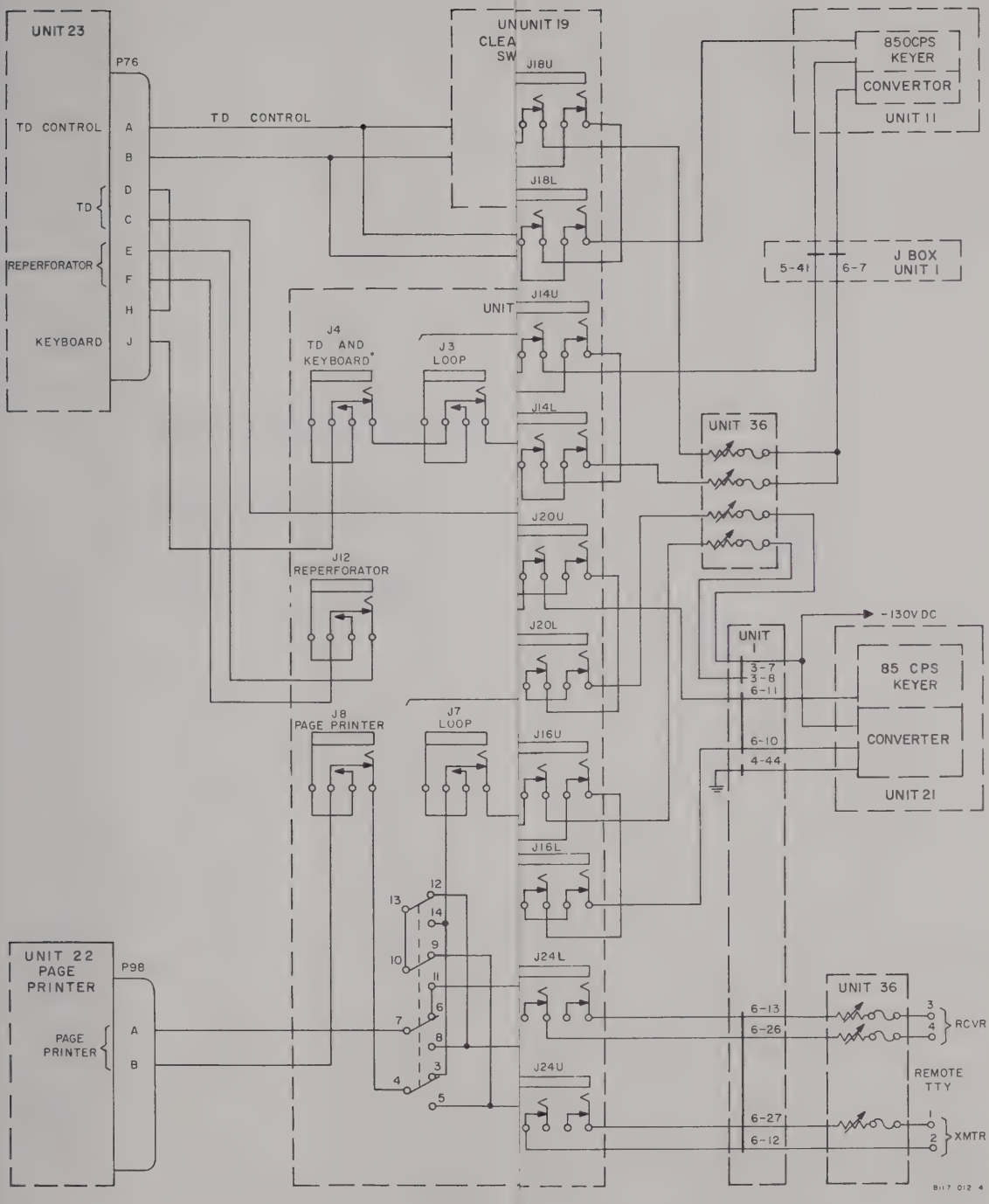


Figure 5-9. TTY Functional Diagram

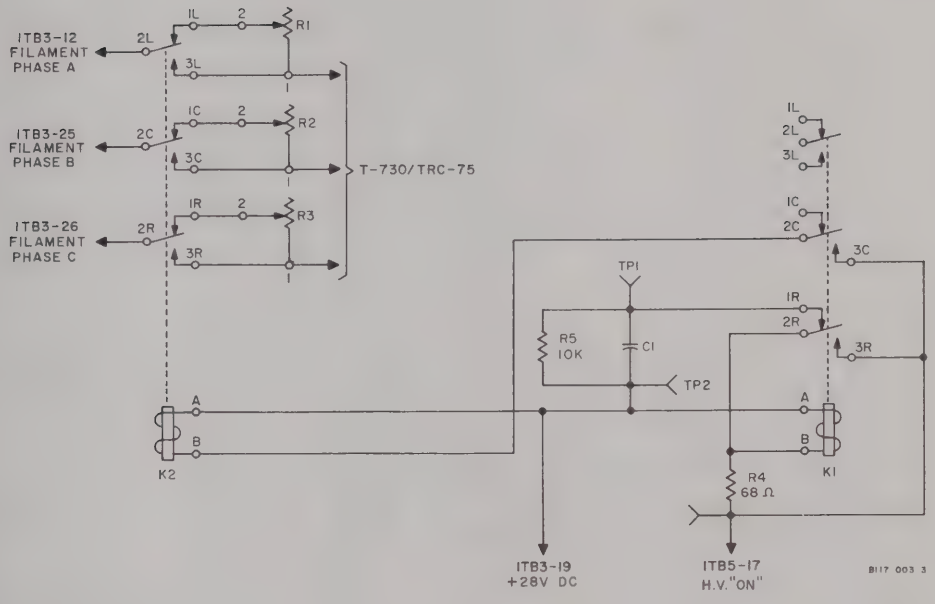


Figure 5-10. Step-Start Relay, Schematic Diagram

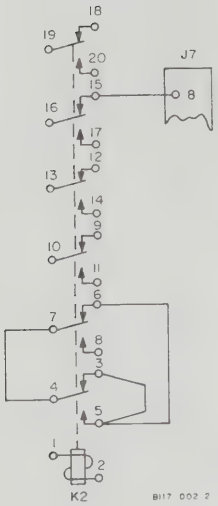


Figure 5-11. Converter-Oscillator CV-786/TRC-75, K2 Modification, Schematic Diagram

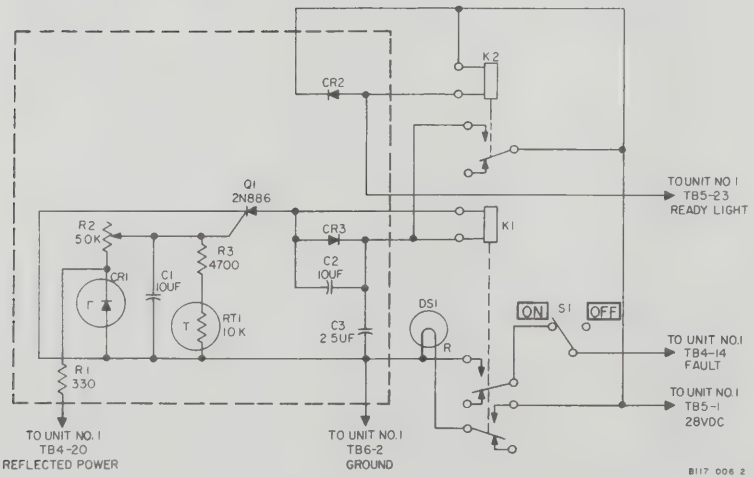


Figure 5-12. Reflected Power Protective Circuit, Schematic Diagram

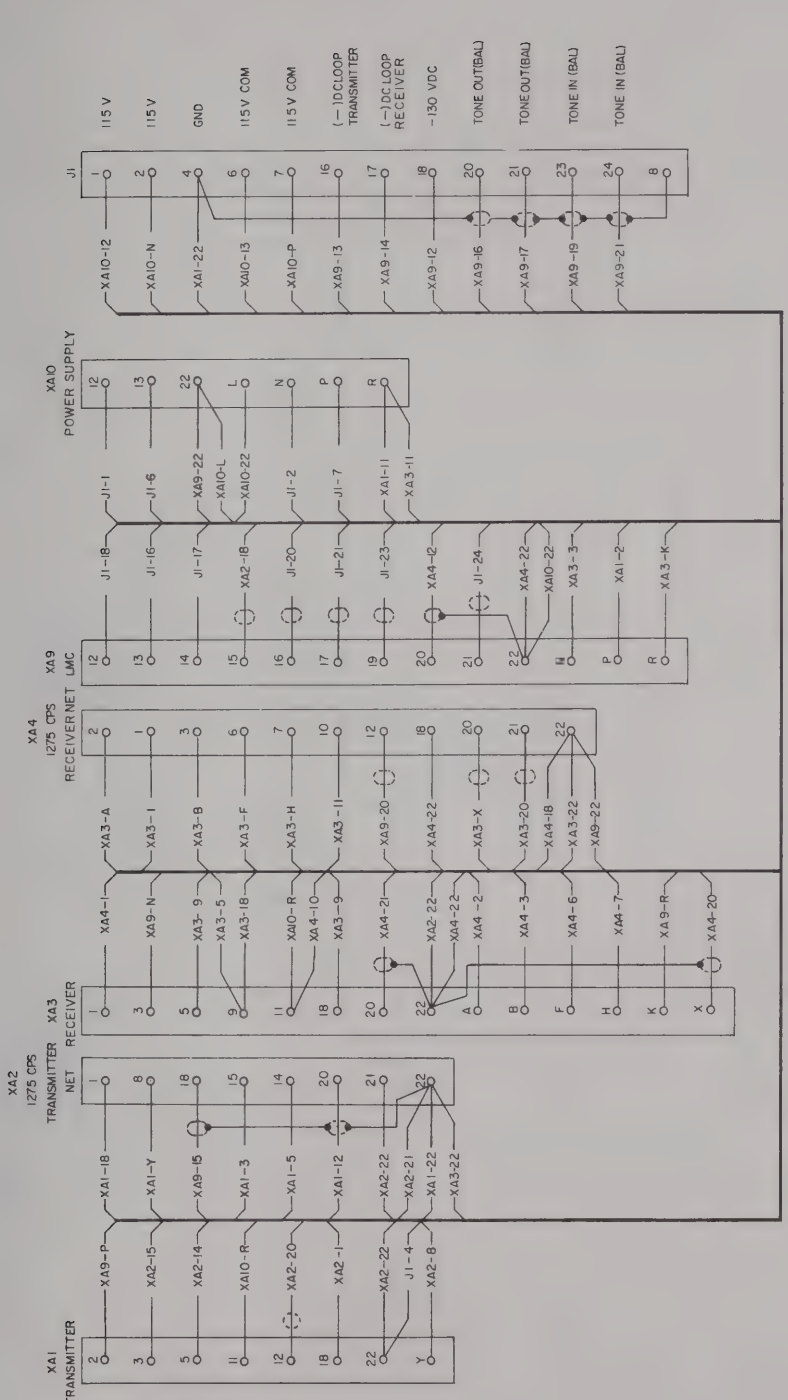
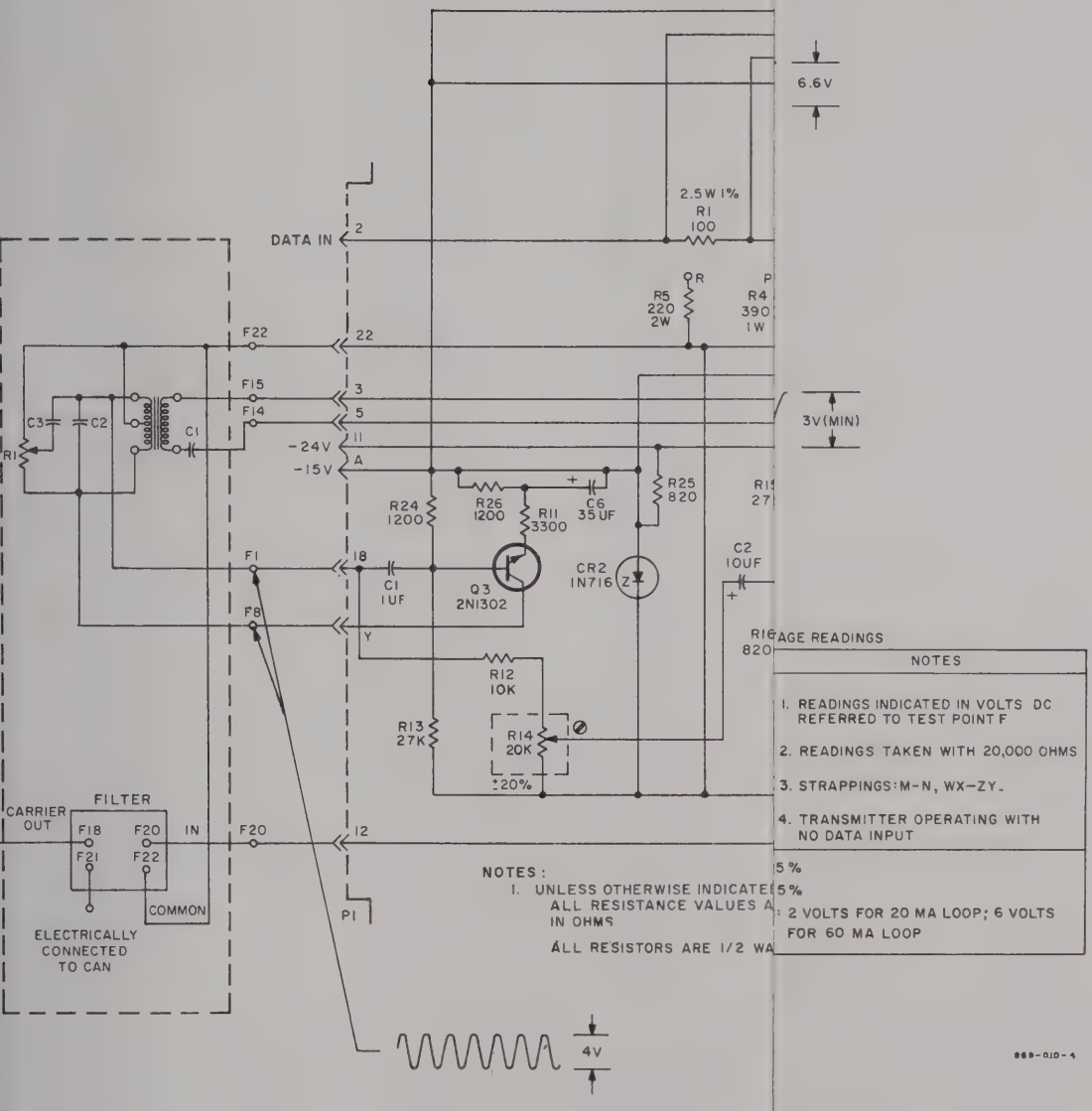
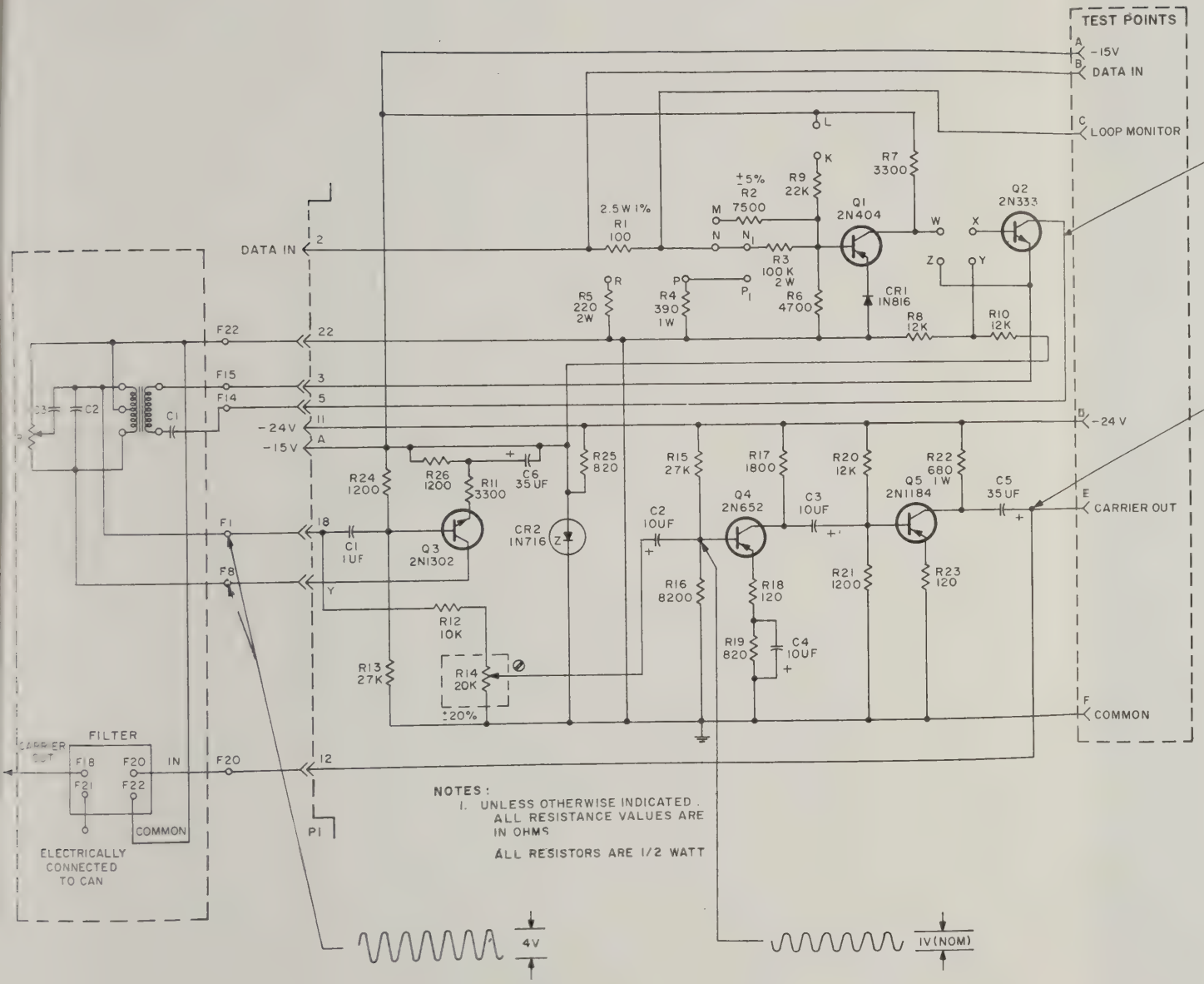


Figure 5-13. C-8102 Card Cage, Wiring Diagram



M Carrier Telegraph Transmitter
Schematic Diagram



NOTES:
1. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS
ALL RESISTORS ARE 1/2 WATT

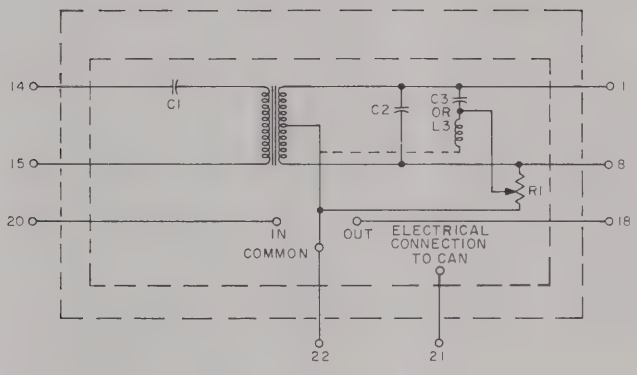
VOLTAGE READINGS

	E	B	C	NOTES
Q1	-0.4	-0.02	-13.1	1. READINGS INDICATED IN VOLTS DC REFERRED TO TEST POINT F
Q2	-10.8	-13.1	0	2. READINGS TAKEN WITH 20,000 OHMS
Q3	-14.2	-14.2	-0.24	3. STRAPPINGS: M-N, WX-ZY.
Q4	-5.35	-5.35	-14.8	4. TRANSMITTER OPERATING WITH NO DATA INPUT
Q5	-1.75	-18.5	-14.6	

TEST POINT D: -24 VOLTS DC ± 5%
TEST POINT A: - 15 VOLTS DC ± 5%
BETWEEN TEST POINTS B AND C: 2 VOLTS FOR 20 MA LOOP; 6 VOLTS FOR 60 MA LOOP

869-010-4

Figure 5-14. C-8102 FM Carrier Telegraph Transmitter 34B1-SW, Schematic Diagram



CHANNEL	CENTER FREQUENCY
1	425 CPS
2	595 CPS
3	765 CPS
4	935 CPS
5	1105 CPS
6	1275 CPS
7	1445 CPS
8	1615 CPS
9	1785 CPS
10	1955 CPS
11	2125 CPS
12	2295 CPS
13	2465 CPS
14	2635 CPS
15	2805 CPS
16	2975 CPS
17	3145 CPS
18	3315 CPS

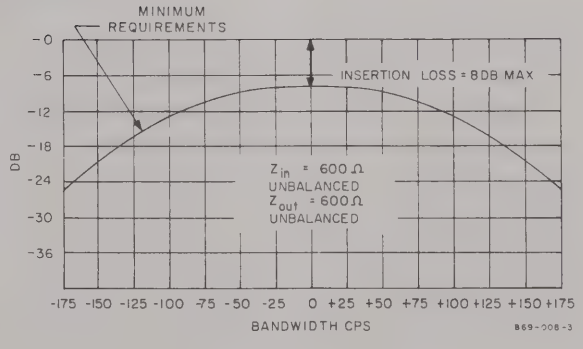
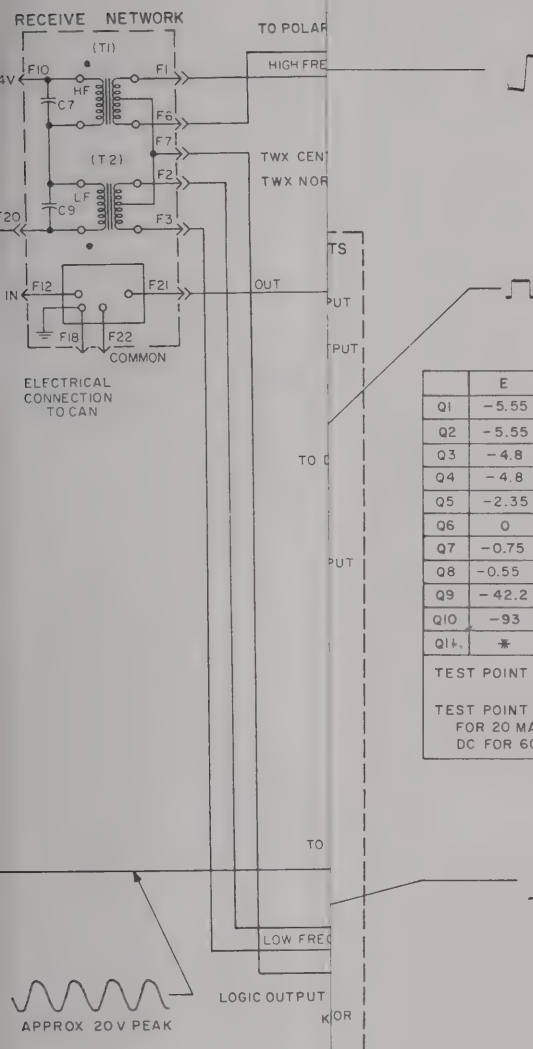


Figure 5-15. Transmit Filter Network, Schematic Diagram



VOLTAGE READINGS

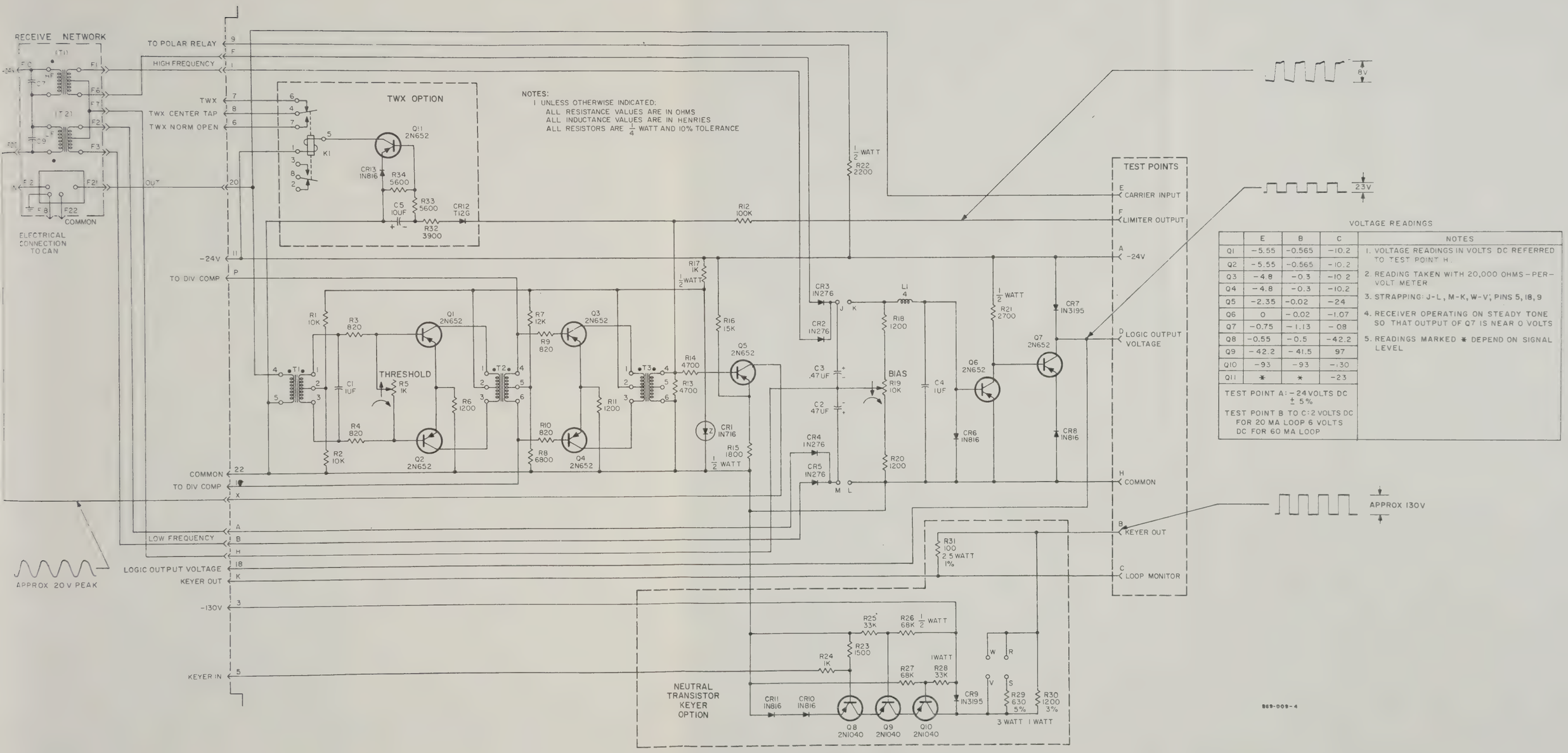
	E	B	C
Q1	-5.55	-0.565	-10.2
Q2	-5.55	-0.565	-10.2
Q3	-4.8	-0.3	-10.2
Q4	-4.8	-0.3	-10.2
Q5	-2.35	-0.02	-24
Q6	0	-0.02	-1.07
Q7	-0.75	-1.13	-08
Q8	-0.55	-0.5	-42.2
Q9	-42.2	-41.5	97
Q10	-93	-93	-130
Q11	*	*	-23
TEST POINT A: -24 VOLTS DC ± 5%			
TEST POINT B TO C: 2 VOLTS DC FOR 20 MA LOOP 6 VOLTS DC FOR 60 MA LOOP			

NOTES

1. VOLTAGE READINGS IN VOLTS DC REFERRED TO TEST POINT H.
2. READING TAKEN WITH 20,000 OHMS-PER-VOLT METER
3. STRAPPING: J-L, M-K, W-V; PINS 5, 18, 9
4. RECEIVER OPERATING ON STEADY TONE SO THAT OUTPUT OF Q7 IS NEAR 0 VOLTS
5. READINGS MARKED * DEPEND ON SIGNAL LEVEL

869-009-4

16. C-8102 FM Carrier Telegraph Receiver 35E2-SW, Schematic Diagram



VOLTAGE READINGS

	E	B	C
Q1	−5.55	−0.565	−10.2
Q2	−5.55	−0.565	−10.2
Q3	−4.8	−0.3	−10.2
Q4	−4.8	−0.3	−10.2
Q5	−2.35	−0.02	−24
Q6	0	−0.02	−1.07
Q7	−0.75	−1.13	−08
Q8	−0.55	−0.5	−42.2
Q9	−42.2	−41.5	97
Q10	−93	−93	−130
Q11	*	*	−23

TEST POINT A: −24 VOLTS DC ± 5%

TEST POINT B TO C: 2 VOLTS DC FOR 20 MA LOOP 6 VOLTS DC FOR 60 MA LOOP

NOTES

1. VOLTAGE READINGS IN VOLTS DC REFERRED TO TEST POINT H.
2. READING TAKEN WITH 20,000 OHMS−PER−VOLT METER
3. STRAPPING: J-L, M-K, W-V; PINS 5, 18, 9
4. RECEIVER OPERATING ON STEADY TONE SO THAT OUTPUT OF Q7 IS NEAR 0 VOLTS
5. READINGS MARKED * DEPEND ON SIGNAL LEVEL

Figure 5-16. C-8102 FM Carrier Telegraph Receiver 35E2-SW, Schematic Diagram

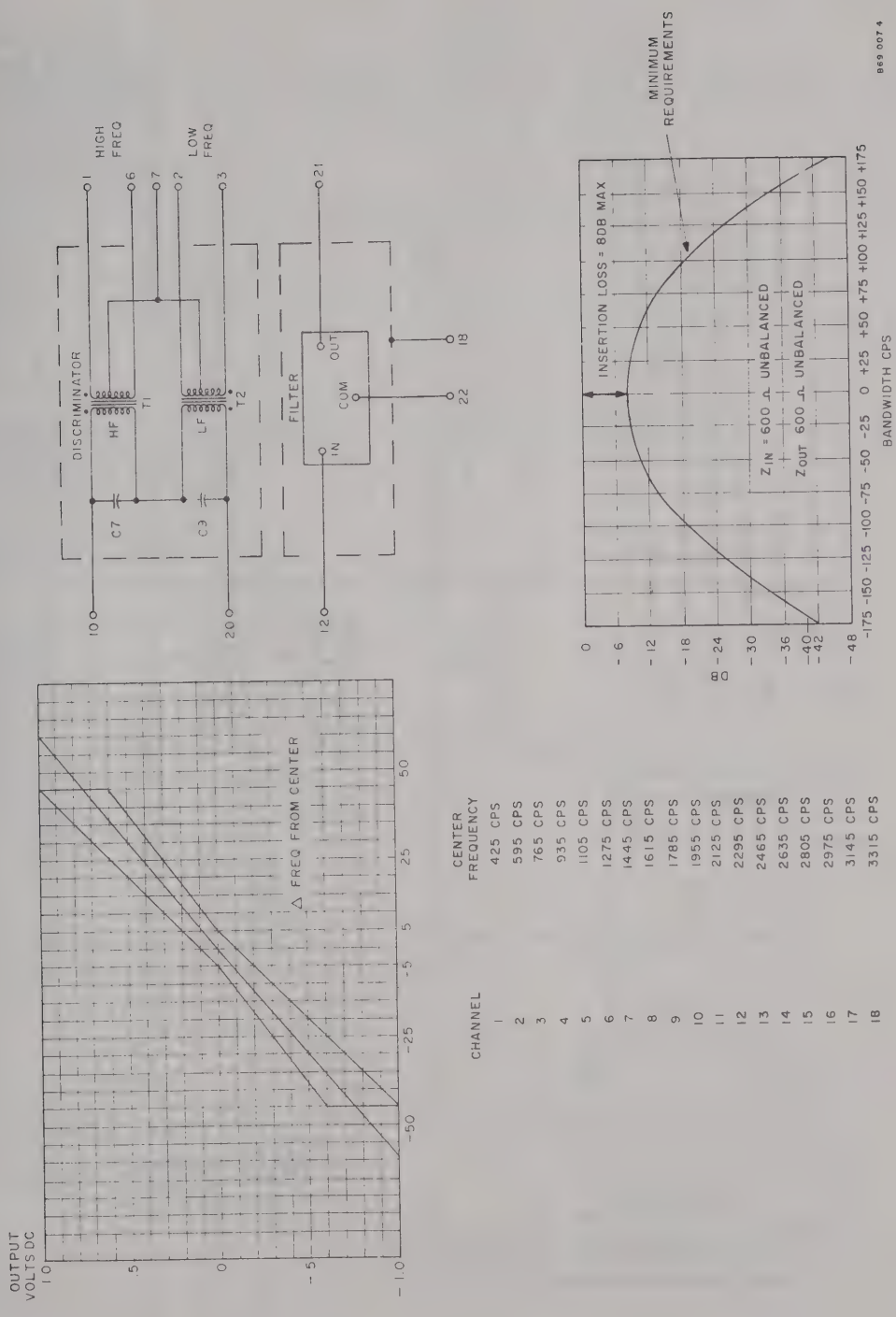


Figure 5-17. Receive Filter Network, Schematic Diagram

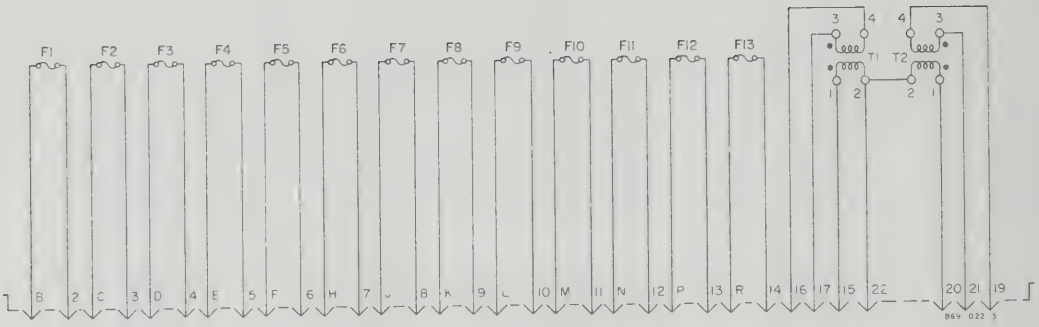


Figure 5-18. Line Matching Card, Schematic Diagram

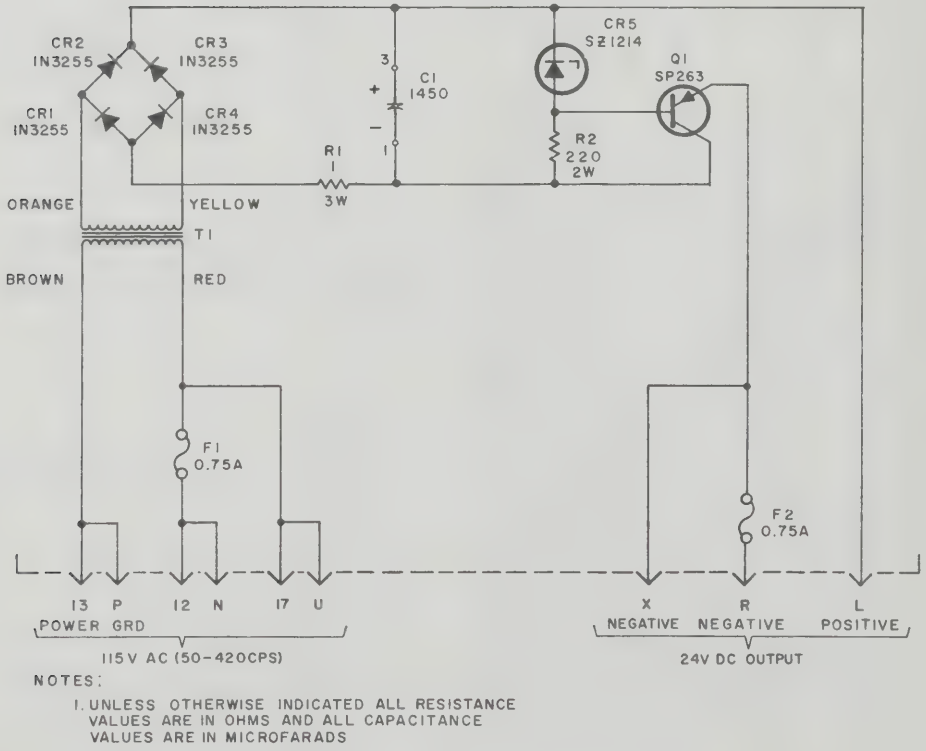


Figure 5-19. Power Supply 16B1-SW, Schematic Diagram

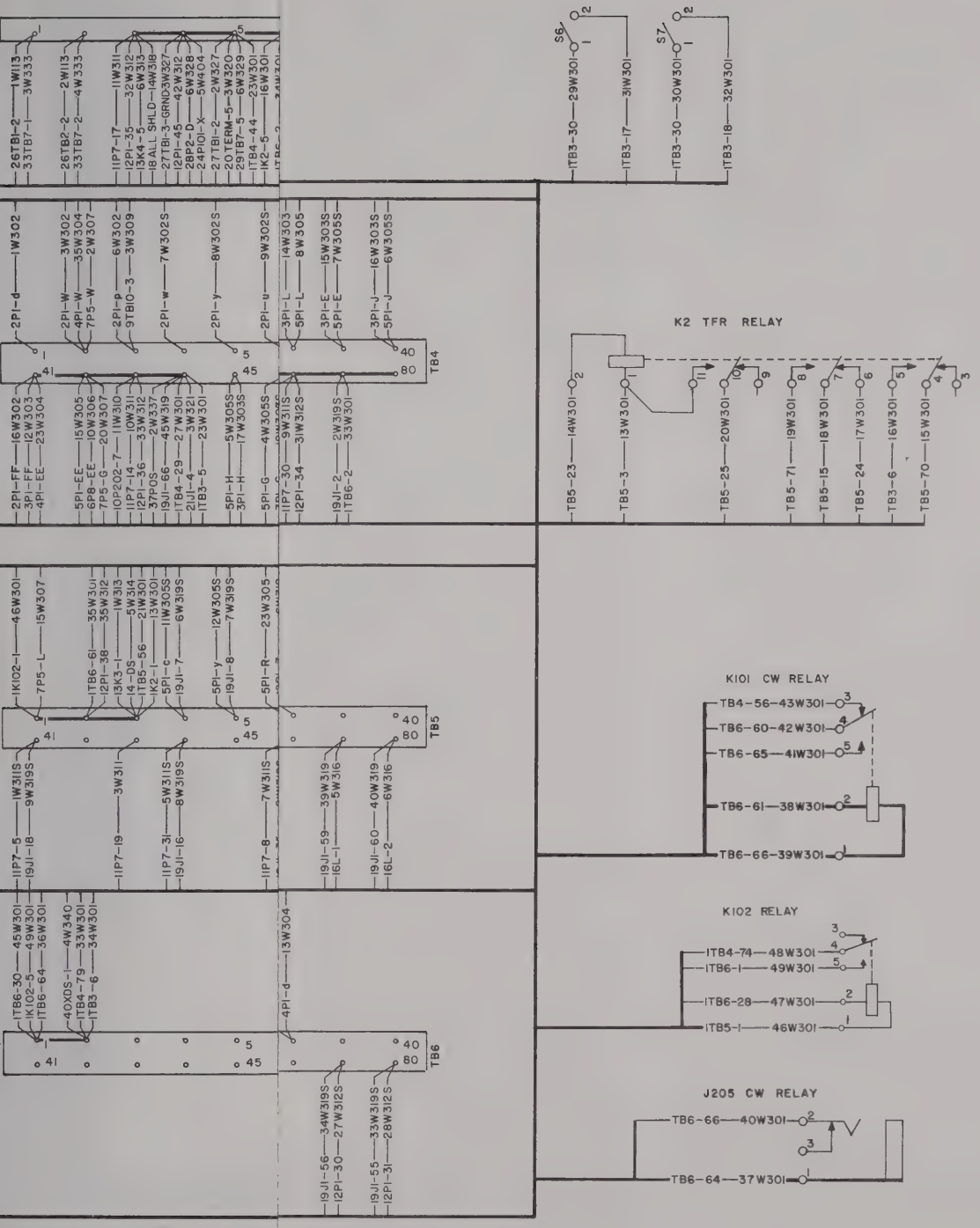


Figure 5-20. J-Box Wiring Diagram

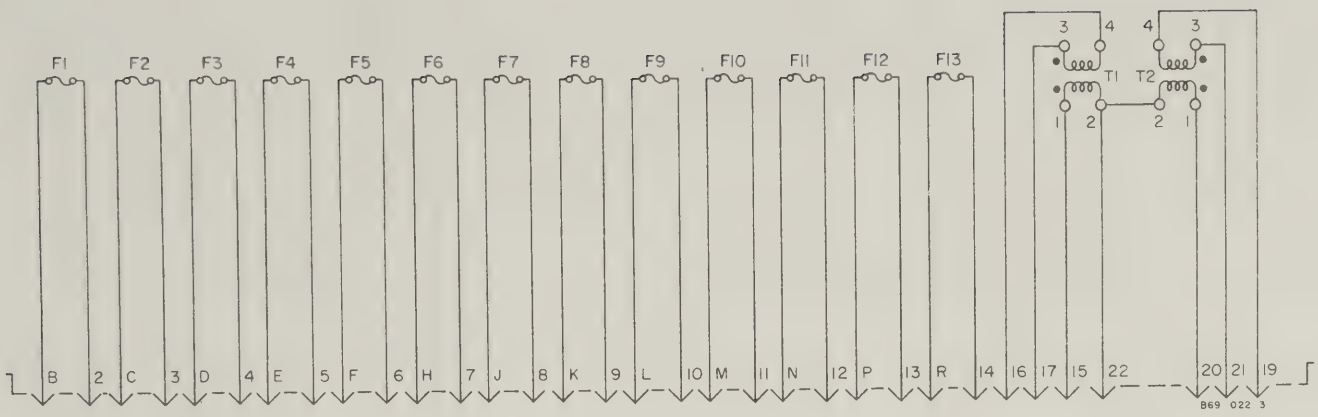


Figure 5-18. Line Matching Card, Schematic Diagram

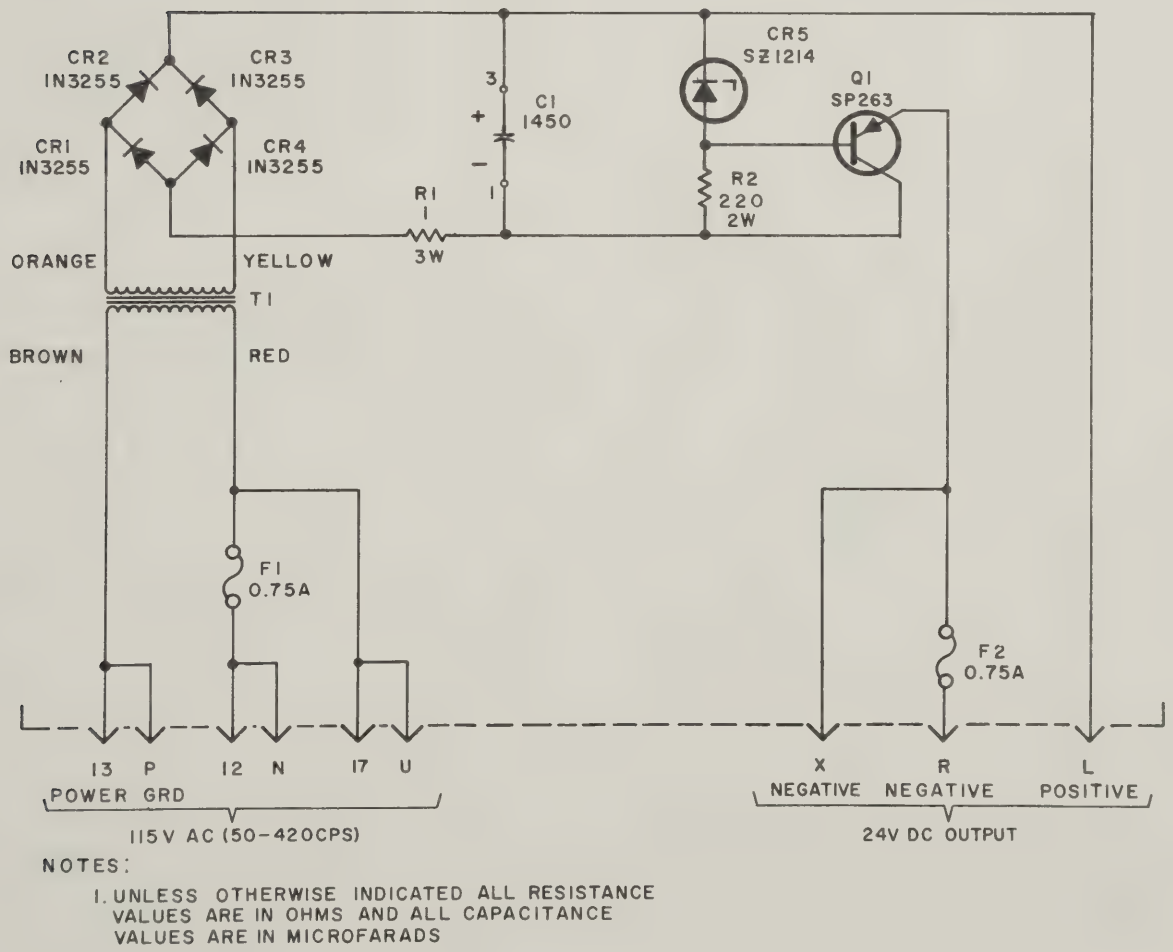


Figure 5-19. Power Supply 16B1-SW, Schematic Diagram

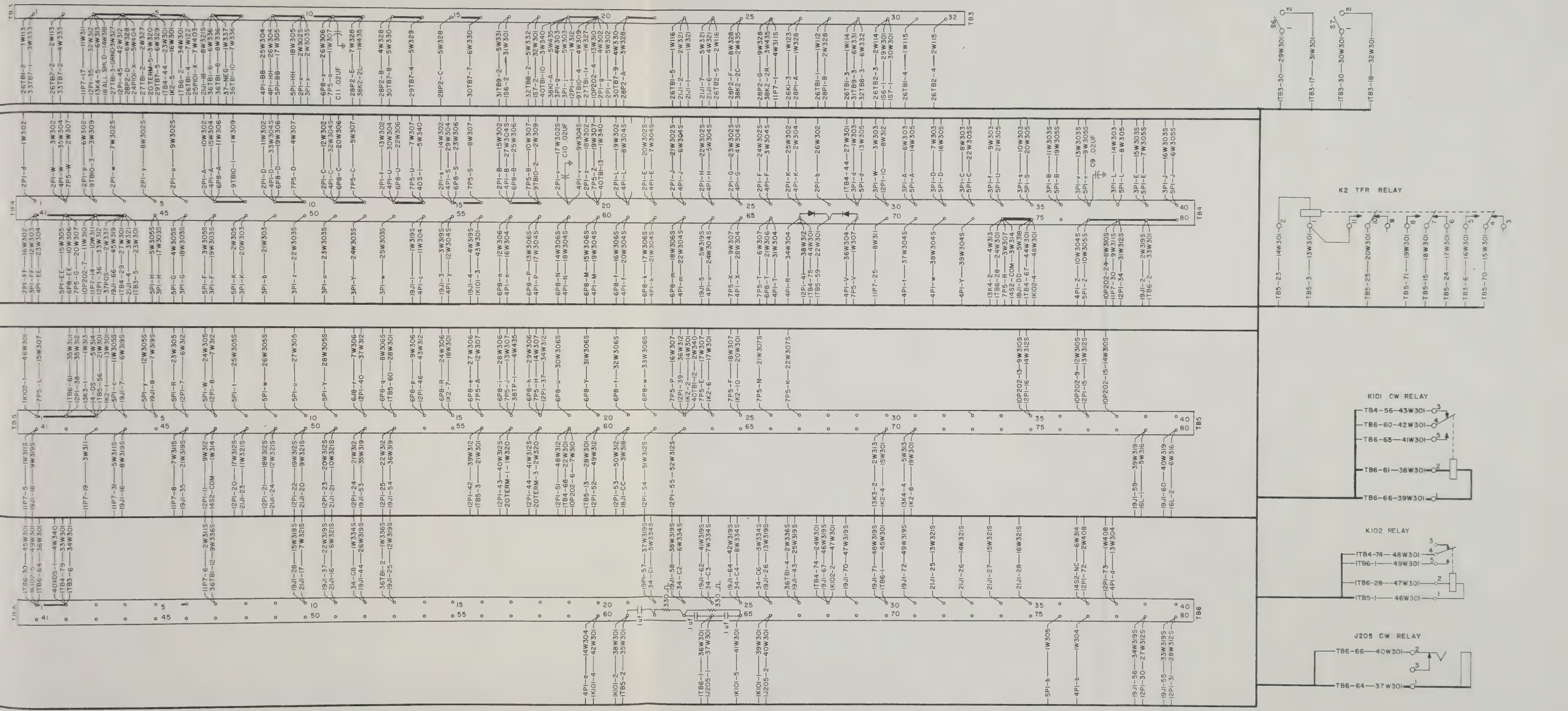


Figure 5-20. J-Box Wiring Diagram

REVISION "A"

EXP. NO. 53-4362-457

COLLINS

FRONT SHEET

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

EQUIPMENT TYPE NO.

5560147-00

USED ON ASSEMBLY

COLLINS NO.	QTY.	TYPE
556-0101		

B/M FOR: SHELTER WIRING-INTERNAL

ENGINEER _____ APPROVED _____

CHECKED DATE

QUANTITY	ITEM NO.	QUANTITIES ARE FOR ONE ASSEMBLY COLLINS PART NO.	PART NAME

REV

"A" ADD STRAP NOTATION PAGE 35

"B" REWORK TO PRESENT CONFIGURATION

"C" REWORK TO PRESENT CONFIGURATION

D" REWORK TO PRESENT CONFIGURATION

E" INC ADDN A1 THRU A8

S 00

TOLERANCE UNLESS OTHERWISE SPECIFIED: FRACTIONAL: ± DECIMAL: ± ANGLE: ± SCALE: DETAIL:

REVISION							
	0		3	APR - 2 1963	6		
	1		4	APR 15 1963	7		
	2	6 March 1963	5		8		

F-2369 (REV. 6/56)

"A" REVISION

EXP. NO. 53-4362-457

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

EQUIPMENT TYPE NO. 5 3-4362-457 00

USED ON ASSEMBLY

COLLINS NO.	QTY.	TYPE

B/M FOR: SHELTER WIRING-INTERNAL

ENGINEER _____ APPROVED _____

CHECKED DATE

QUANTITY	ITEM NO.	COLLINS PART NO.	PART NAME
		QUANTITIES ARE FOR ONE ASSEMBLY	
AR	1	439 6004 009	WIRE TWISTED (DASJ9&1)
AR	2	439 6000 009	WIRE TWISTED (DASJ9&6)
AR	3	439 5004 009	WIRE TWISTED (DASJ9&8)
AR	4	1386	WIRE (12 GA)
AR	5	1387	WIRE (10 GA)
AR	6	1865	WIRE (22 GA)
AR	7	439 1550 00	WIRE (RE 9)
AR	8	439 6209 00	WIRE (DASJ 9)
AR	9	439 1350 00	WIRE (RC 9)
AR	10	439 6530 00	WIRE (RCSJ 9)
	11		
2	12	745 5631 00	RESISTOR 330 2 WATT
3	13	913 3678 00	CAPACITOR .02 UF DISC CERAMIC
2	14	951 0099 00	CAPACITOR 1.0 UF
1	15	P85 250	CAPACITOR 0.1 UF (SPRAGUE)
2	16	353 1720 00	DIODE
5	17	PB06E-22-55S	PLUG
2	18	PB06E-16-26S	PLUG
1	19	DB-25S	PLUG
1	20	DPA-32-33S-2	PLUG

5 00

TOLERANCE UNLESS OTHERWISE SPECIFIED: FRACTIONAL: ± DECIMAL: ± ANGLE: ± SCALE: DETAIL:

REVISION							
	0		3		6		
	1		4	APR 1 9 1963	7		
	2	6 March 1963	5		8		

F-2369 (REV. 6/56)

EXP. NO.

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

EQUIPMENT TYPE NO. 5B 4362 457 00

USED ON ASSEMBLY

COLLINS NO.	QTY.	TYPE

B/M FOR:

ENGINEER _____ APPROVED _____

CHECKED DATE

QUANTITY	ITEM NO.	QUANTITIES ARE FOR ONE ASSEMBLY COLLINS PART NO.	PART NAME
1	21	MS75R-124	Receptacle
1	22	164-7J	Receptacle
1	23	MS75R-7T	Receptacle
	24	RC24W1	Receptacle
1	25	DPXB-45-335-001	PLUG
2	26	MRE34P-G	Plug
2	27	MRE-VL	Latch
2	28	MRE-34H	Hood
1	29	MS3108R-24225	Plug
1	30	MS3108-20-15	Plug
1	31	745563100	Resistor 330 ohm 2 watt
2	32	MS25226-4-4	Buss Strip
5	33	MS25226-4-2	Buss Strip
8	34	MS25226-2-2	Buss Strip
1	35	MS25226-2-3	Buss Strip
2	36	MS25226-2-4	Buss Strip

5 00

TOLERANCE UNLESS OTHERWISE SPECIFIED: FRACTIONAL: ± DECIMAL: ± ANGLE: ± SCALE: DETAIL:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2		5		8		

F-2369 (REV. 6/56)

UNIT DESIG.		UNIT DESCRIPTION
1	"J" BOX	
2	C-3141	CONTROL UNIT/TRANSMITTER
3	C-3141	CONTROL UNIT/RECEIVER
4	R-761	RECEIVER/EXCITER
5	R-761	RECEIVER
6	T-730	TRANSMITTER
7	C-2848	COUPLER CONTROL
8	CU-749	COUPLER
9	RF-111	LOAD COIL
10	AM 2306	AMPLIFIER
11	CV-786	CONVERTER OSCILLATOR
12	FAB	OPERATORS CONTROL PANEL
13	FAB	RELAY PANEL #1
14	FAB	TR & TD SW. PANEL
15	FAB	OPERATOR PANEL
16	GRA-6	LOCAL CONTROL
17	GRA-6	REMOTE CONTROL
18		JACKFIELD (RED) DC PATCH
19		JACKFIELD (BLACK) AUDIO PATCH
20		DIRECTIONAL COUPLER
21	C-8102	FSK
22	TT-98	TELETYPEWRITER
23	TT-76	TELETYPEWRITER
24	KW9	CRYPTO RECEIVE
25	KW9	CRYPTO TRANSMIT
26	FAB	POWER DIST. BOX
27	28 VDC	POWER SUPPLY
28	G. E.	FREQUENCY CONVERTER
29	HB/441/TRC 75	BLOWER (RECEIVERS)
30	QS 2502 (ROTRON)	BLOWER (TRANSMITTER)
31	KS 803 (ROTRON)	PROPELLER FAN, EXHAUST (LEFT)
32	KS 803 (ROTRON)	PROPELLER FAN, EXHAUST (RIGHT)
33	SC 800 (TORRINGTON)	CONVERTER FAN
34		SIGNAL ENTRY
35	5470922004	ANTENNA INSULATOR
36		TTY CONTROL PANEL
37		130 VDC P/S
38		STEP-START SWITCH
39		TEXT SWITCH
40		REFLECTED POWER PROTECTIVE DEVICE

CAL CHANGE

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION						
	0		3	ECR - 8 1663	6	
	1		4	APR 1 8 1963	7	
	2	6 March 1963	5		8	

PD-721 976-0045-00

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 1 OF SHEETS

UNIT 1
J-BOX - INTERNAL CABLE

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
			K2-1		K2-11		JUMPER
13	W301	1	K2-1	1	TB5-3	22	28 V.D.C.
14	W301	1	K2-2	1	TB5-23	22	GND
15	W301	1	K2-4	1	TB5-70	22	28 V.D.C.
16	W301	1	K2-5	1	TB3-6	22	GROUND
17	W301	1	K2-6	1	TB5-24	22	CONTROL E
18	W301	1	K2-7	1	TB5-15	22	KEY
19	W301	1	K2-8	1	TB5-71	22	KEY
20	W301	1	K2-10	1	TB5-25	22	TFR CONT.
21	W301	1	TB5-56	1	TB5-3	22	28 VDC
22	W301	1	TB4-68	1	TB5-59	22	VOX KEY
23	W301	1	TB3-5	1	TB4-44	14	SHIELD GROUND

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

UNIT 1
J-BOX- INTERNAL CABLE

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00
SHEET 2 OF SHEETS

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
27	W301	1	TB4-29	1	TB4-44	14	
28	W301	1	TB5-13	1	TB5-60	22	P/A CONT.
29	W301	1	TB3-30	1	S6-1	18	115 VAC
30	W301	1	TB3-30	1	S7-1	18	115 VAC
31	W301	1	TB3-17	1	S6-2	14	115 VAC
32	W301	1	TB3-18	1	S7-2	14	115 VAC
33	W301	1	TB6-2	1	TB4-79	14	AUDIO COMMON
34	W301	1	TB6-2	1	TB3-6	14	AUDIO COMMON
35	W301	1	TB5-2	1	TB6-61	22	28 V.
36	W301	1	TB6-1	1	TB6-64	22	GROUND
37	W301	1	TB6-64	1	SLEEVE J 205	22	GROUND
38	W301	1	TB6-61	1	K101-2	22	
39	W301	1	TB6-66	1	K101-1	22	28 VDC
40	W301	1	TB6-66	1	TIP J205	22	28 VDC
41	W301	1	TB6-65	1	K101-5	22	
42	W301	1	TB6-60	1	K101-4	22	
43	W301	1	TB4-56	1	K101-3	22	
44	W301	1	TB4-67	1	TB4-75	22	
45	W301	1	TB6-1	1	TB6-30	22	
46	W301	1	K102-1	1	TB5-1	22	
47	W301	1	K102-2	1	TB6-28	22	
48	W301	1	K102-4	1	TB4-74	22	
49	W301	1	K102-5	1	TB6-1	22	

5 00

Tolerance Unless Otherwise Specified: Fractional ± Decimal: ± Angles ± Scale: Details

REVISION							
	0		3		6		
	1		4	APR 1 8 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 3 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

UNIT 1 cont.

J BOX - INTERNAL JUMPERS

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
			TB4-37		C9 → Ground		913 3678 00
			TB4-19		C10 → Ground		913 3678 00
			TB3-11		C11 → Ground		913 3678 00
			TB4-67		353172000		
			TB4-68				
			TB4-69				

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR 1 8 1963	6		
	1		4		7		
	2	6 March 1963	5		8		

COLLINS

J-BOX UNIT NO. 1 — COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA — 5 3-4362-457 00 — SHEET 4 OF SHEETS

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
			TB6-61				
					.1UF-P85250 (Sprague)		
			TB6-62				
					330 OHMS-745 5631 00 2 Watt		
			TB6-63				
			1UF-951 0099 00				
			TB6-64		330 OHMS-745 5631 00 2 Watt		
			1UF-951 0099 00				
			TB6-65				
			All Shielded wires entering J-Box (except W318 wires 3&5)				
			are to have their shields grounded at J-Box only				
	BUSS FOLLOWING TERMINAL TOGETHER WITH COPPER STRIP						
	TB3-3 thur TB3-6				TB4-15 to TB4-16		
	TB3-7 to TB3-8				TB4-17 to TB4-18		
	TB3-9 thru TB3-12				TB4-41 thru TB4-44		
	TB3-13 to TB3-14				TB4-74 to TB4-75		
	TB3-15 to TB3-16				TB4-77 thru TB4-80		
	TB3-19 to TB3-20				TB5-1 thru TB5-3		
	TB3-21 to TB3-22				TB6-1 to TB6-2		
	TB4-7 to TB4-8						
	TB4-9 to TB4-10						
	TB4-11 to TB4-12						
	TB4-13 to TB4-14						

5 00

Tolerance Unless Otherwise Specified: Fractional ± | Decimal ± | Angular ± | Scale | Details

REVISION					
0		3	APR 1 8 1963	6	
1		4	APR 1 8 1963	7	
2	6 March 1963	5		8	

COLLINS

RADIO SET CONTROL C3141/TRC-75
UNIT NO. 2

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 5 OF SHEETS

PB06E-22-55-5

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W302	2	P1-d	1	TB4-1	22	Twin Control
2	W302S	2	P1-x	1	TB3-10	18	400 Cycle ϕ A
3	W302	2	P1-W	1	TB4-2	22	AM Control
4	W302	2	P1-g	1	TB3-20	18	Panel Lights
5	W302	2	P1-j	1	TB3-20	18	28 V DC
6	W302	2	P1-p	1	TB4-3	22	Control U
7	W302S	2	P1-w	1	TB4-4	22	Spare
8	W302S	2	P1-Y	1	TB4-5	22	Spare
9	W302S	2	P1-u	1	TB4-6	22	Spare
10	W302	2	P1-A	1	TB4-7	22	Control A
11	W302	2	P1-D	1	TB4-9	22	Control D
12	W302	2	P1-C	1	TB4-11	22	Control C
13	W302	2	P1-f	1	TB4-13	22	Fault
14	W302	2	P1-s	1	TB4-15	22	On-Off
15	W302	2	P1-B	1	TB4-17	22	Control B
16	W302	2	P1-FF	1	TB4-41	22	Shield Ground
17	W302S	2	P1-v	1	TB4-19	22	R-F Gain
18	W302	2	P1-z	1	TB4-20	22	SWR Meter
19	W302	2	P1-L	1	TB4-21	22	Control L
20	W302	2	P1-E	1	TB4-22	22	Control E
21	W302	2	P1-J	1	TB4-23	22	Control J
22	W302S	2	P1-H	1	TB4-24	22	Control H

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

RADIO SET CONTROL C3141/TRC-75
UNIT NO. 2 - CONTD.

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-45700
SHEET 8 OF SHEETS

WIRE NO	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
23	W302S	2	P1-G	1	TB4-25	22	Control G
24	W302S	2	P1-F	1	TB4-26	22	Control F
25	W302	2	P1-K	1	TB4-27	22	Control K
26	W302	2	P1-b	1	TB4-28	22	SB Cont

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00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - 6 1963	6		
	1		4	APR 16 1963	7		
	2	6 March 1963	5		8		

COLLINS

RADIO SET CONTROL C3141/TRC-75
UNIT NO. 3
COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

PB06E-22-55-5

53-4362-457 00

SHEET 7 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W303	3	P1-d	1	TB4-29	22	Twin Control
2	W303S	3	P1-x	1	TB3-10	18	400 cycle ϕ A
3	W303	3	P1-W	1	TB4-30	22	AM Control
4	W303	3	P1-g	1	TB3-19	22	Panel Lights
5	W303	3	P1-j	1	TB3-19	22	28 V DC
6	W303	3	P1-A	1	TB4-31	22	Control A
7	W303	3	P1-D	1	TB4-32	22	Control D
8	W303	3	P1-C	1	TB4-33	22	Control C
9	W303	3	P1-f	1	TB4-34	22	Fault
10	W303	3	P1-s	1	TB4-35	22	On-Off
11	W303S	3	P1-B	1	TB4-36	22	Control B
12	W303	3	P1-FF	1	TB4-41	22	Shield Ground
13	W303S	3	P1-v	1	TB4-37	22	RF Gain
14	W303	3	P1-L	1	TB4-38	22	Control L
15	W303S	3	P1-E	1	TB4-39	22	Control E
16	W303S	3	P1-J	1	TB4-40	22	Control J
17	W303S	3	P1-H	1	TB4-45	22	Control H
18	W303S	3	P1-G	1	TB4-46	22	Control G
19	W303S	3	P1-F	1	TB4-47	22	Control F
20	W303	3	P1-K	1	TB4-48	22	Control K
21	W303	3	P1-b	1	TB4-49	22	SB Control
22	W303S	3	P1-z	1	TB4-50	22	Spare

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

RADIO SET CONTROL C3141/TRC-75
UNIT NO. 3

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-4500

SHEET 8 OF SHEETS

WIRE NO	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
23	W303S	3	P1-u	1	TB4-51	22	Spare
24	W303S	3	P1-Y	1	TB4-52	22	Spare
25	W303S	3	P1-w	1	TB4-53	22	Spare

5 00

Tolerance Unless Otherwise Specified: Fractional ± Decimal: ± Angles ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

RADIO RECEIVER/EXCITER R761/ARC 58
UNIT NO. 4
PB06E-22-55-S

53-4362-457 00
SHEET 9 OF SHEETS
USED ON ASSEMBLY
COLLINS NO. | Q'T'Y | TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W304	4	P1-b	1	TB6-77	22	SB Control
2	W304	4	P1-K	1	TB4-27	22	Control K
3	W304S	4	P1-F	1	TB4-26	22	Control F
4	W304S	4	P1-G	1	TB4-25	22	Control G
5	W304S	4	P1-H	1	TB4-24	22	Control H
6	W304S	4	P1-J	1	TB4-23	22	Control J
7	W304S	4	P1-E	1	TB4-22	22	Control E
8	W304S	4	P1-L	1	TB4-21	22	Control L
9	W304S	4	P1-v	1	TB4-19	22	RF Gain
10	W304S	4	P1-Z	1	TB4-77	22	Audio Common
11	W304S	4	P1-c	1	TB4-54	22	Audio UO
12	W304S	4	P1-y	1	TB4-55	22	Audio LO
13	W304	4	P1-d	1	TB6-38	22	Twin Control
14	W304S	4	P1-a	1	TB 6-60	22	Audio Ul
15	W304	4	P1-A	1	TB4-7	22	Control A
16	W304	4	P1-n	1	TB4-57	22	Sidetone Gate
17	W304S	4	P1-P	1	TB4-58	22	Control P
18	W304S	4	P1-N	1	TB4-59	22	Control N
19	W304S	4	P1-M	1	TB4-60	22	Control M
20	W304S	4	P1-f	1	TB4-61	22	AM-ALC
21	W304S	4	P1-k	1	TB4-62	22	ACC
22	W304S	4	P1-m	1	TB4-63	22	ALC

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

RADIO RECEIVER/EXCITER R761/ARC 58
UNIT NO. 4 CONT.

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-45700
SHEET 10 OF SHEETS

WIRE NO	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
23	W304	4	P1-EE	1	TB4-41	22	Shield Ground
24	W304S	4	P1-u	1	TB4-64	22	Audio LI
25	W304	4	P1-BB	1	TB3-9	18	A Phase
26	W304	4	P1-HH	1	TB3-9	18	A Phase
27	W304 S	4	P1-B	1	TB4-17	22	Control B
28	W304	4	P1-X	1	TB4-65	22	Tune Tone
29	W304	4	P1-S	1	TB4-15	22	On-Off
30	W304	4	P1-U	1	TB4-13	22	Fault
31	W304	4	P1-T	1	TB4-66	22	Tune Control
32	W304S	4	P1-C	1	TB4-11	22	Control C
33	W304S	4	P1-D	1	TB4-9	22	Control D
34	W304	4	P1-R	1	TB4-67	22	Key
35	W304	4	P1-W	1	TB4-2	22	AM Control
36	W304	4	P1-V	1	TB4-69	22	VOX Key
37	W304S	4	P1-t	1	TB4-71	22	Spare
38	W304S	4	P1-w	1	TB4-72	22	Spare
39	W304S	4	P1-Y	1	TB4-73	22	Spare

5
00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - [illegible]	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 1 OF SHEETS

RADIO RECEIVER R761/ARC-58
UNIT NO. 5
PB06E-22-55-S

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W305	5	P1-b	1	TB6-76	22	SB Control
2	W305	5	P1-K	1	TB4-48	22	Control K
3	W305S	5	P1-F	1	TB4-47	22	Control F
4	W305S	5	P1-G	1	TB4-46	22	Control G
5	W305S	5	P1-H	1	TB4-45	22	Control H
6	W305S	5	P1-J	1	TB4-40	22	Control J
7	W305S	5	P1-E	1	TB4-39	22	Control E
8	W305	5	P1-L	1	TB4-38	22	Control L
9	W305S	5	P1-v	1	TB4-37	22	RF Gain
10	W305S	5	P1-Z	1	TB4-77	22	Audio Common
11	W305S	5	P1-c	1	TB5-4	22	Audio HO
12	W305S	5	P1-y	1	TB5-5	22	Audio LO
13	W305	5	P1-d	1	TB4-29	22	Twin Control
14	W305	5	P1-A	1	TB4-31	22	Control A
15	W305	5	P1-EE	1	TB4-42	22	Shield Ground
16	W305	5	P1-D	1	TB4-32	22	Control D
17	W305	5	P1-BB	1	TB3-9	18	400 ϕ A
18	W305	5	P1-HH	1	TB3-10	18	400 cycle ϕ A
19	W305S	5	P1-B	1	TB4-36	22	Control B
20	W305	5	P1-S	1	TB4-35	22	On-Off
21	W305	5	P1-U	1	TB4-34	22	Fault
22	W305S	5	P1-C	1	TB4-33	22	Control C

S 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

WIRE NO	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
23	W305	5	P1-R	1	TB5-6	22	Key
24	W305	5	P1-W	1	TB5-7	22	AM Control
25	W305S	5	P1-t	1	TB5-8	22	Spare
26	W305S	5	P1-w	1	TB5-9	22	Spare
27	W305S	5	P1-u	1	TB5-10	22	Spare
28	W305S	5	P1-Y	1	TB5-11	22	Spare

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 19 OF SHEETS

RADIO TRANSMITTER T730/TRC-75
UNIT NO. 6
PB06E-22-555

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W306	6	P8-DD	38	R3-1	18	400 cycle ϕ C
2	W306	6	P8-CC	38	R3-1	18	400 cycle ϕ C
3	W306	6	P8-HH	38	R2-1	18	400 cycle ϕ B
4	W306	6	P8-BB	38	R2-1	18	400 cycle ϕ B
5	W306	6	P8-AA	38	R1-1	18	400 cycle ϕ A
6	W306	6	P8-GG	38	R1-1	18	400 cycle ϕ A
7	W306	6	P8-r	1	TB5-12	22	Tune Light
8	W306	6	P8-q	1	TB5-13	22	PA Control
9	W306	6	P8-p	1	TB5-14	22	Power Hi - Lo
10	W306	6	P8-EE	1	TB4-42	22	Shield Ground
11	W306	6	P8-A	1	TB4-7	22	Control A
12	W306	6	P8-n	1	TB4-57	22	Sidetone Gate
13	W306	6	P8-P	1	TB4-58	22	Control P
14	W306	6	P8-N	1	TB4-59	22	Control N
15	W306	6	P8-M	1	TB4-60	22	Control M
16	W306	6	P8-f	1	TB4-61	22	AM-ALC
17	W306	6	P8-k	1	TB4-62	22	ACC
18	W306	6	P8-m	1	TB4-63	22	ALC
19	W306	6	P8-D	1	TB4-9	22	Control D
20	W306	6	P8-C	1	TB4-11	22	Control C
21	W306	6	P8-T	1	TB4-66	22	Tune Control
22	W306	6	P8-U	1	TB4-13	22	Fault

53 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

RADIO TRANSMITTER T730/TRC-75
UNIT NO. 6 CONT

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-45700
SHEET 16 OF SHEETS

WIRE NO	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
23	W306	6	P8-S	1	TB4-15	22	Off-On
24	W306	6	P8-R	1	TB5-15	22	Tx Key
25	W306	6	P8-B	1	TB4-17	22	Control B
26	W306	6	P8-x	1	TB3-11	18	400 cycle ϕ A
27	W306	6	P8-e	1	TB5-16	22	Tune Hold
28	W306	6	P8-i	1	TB5-17	22	HV on - Off
29	W306	6	P8-h	1	TB5-18	22	Tune Power
30	W306S	6	P8-u	1	TB5-19	22	Spare
31	W306S	6	P8-Y	1	TB5-20	22	Spare
32	W306S	6	P8-t	1	TB5-21	22	Spare
33	W306S	6	P8-w	1	TB5-22	22	Spare

5
00

Tolerance Unless Otherwise Specified: Fractional ± Decimal ± Angular ± Scale: Details

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 15 OF 17 SHEETS

ANTENNA COUPLER CONTROL C2848/TRC-75
UNIT NO. 7
PB06E-16-265

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W307	7	P5-V	1	TB4-69	22	VOX Key
2	W307	7	P5-W	1	TB4-2	22	AM Control
3	W307	7	P5-R	1	TB4-74	22	Key
4	W307	7	P5-D	1	TB4-10	22	Control D
5	W307	7	P5-C	1	TB4-12	22	Control C
6	W307	7	P5-T	1	TB4-66	22	Tune Control
7	W307	7	P5-U	1	TB4-14	22	Fault
8	W307	7	P5-S	1	TB4-16	22	Off-On
9	W307	7	P5-X	1	TB4-65	22	Tune Tone
10	W307	7	P5-B	1	TB4-18	22	Control B
11	W307	7	P5-a	1	TB3-11	18	400 cycle ϕ A
12	W307	7	P5-A	1	TB5-16	22	Tune Hold
13	W307	7	P5-J	1	TB5-17	22	HV On-Off
14	W307	7	P5-H	1	TB5-18	22	Tune Power
15	W307	7	P5-L	1	TB5-1	22	28 V DC
16	W307	7	P5-P	1	TB5-23	22	Tune Indicate
17	W307	7	P5-E	1	TB5-24	22	Tx Key INTLK
18	W307	7	P5-F	1	TB5-25	22	TFR Relay
19	W307	7	P5-Z	1	TB4-20	22	SWR Meter
20	W307	7	P5-G	1	TB4-42	22	Ground
21	W307S	7	P5-N	1	TB5-26	22	Spare
22	W307S	7	P5-K	1	TB5-27	22	Spare

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	[illegible]	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 187 OF SHEETS

RF 111/TRC-75
UNIT NO. 9

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W309	9	TB10-1	1	TB4-8	22	Control A
2	W309	9	TB10-2	1	TB4-18	22	Control B
3	W309	9	TB10-3	1	TB4-3	22	Control E
4	W309	9	TB10-4	1	TB3-20	22	28 V DC

S 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 6 1963 APR 18 1963		6	
	1		4			7	
	2	6 March 1963	5			8	

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

AMPLIFIER AM 2306/TRC-75
UNIT NO.10
DB-25S

5 3-4362-457 00

SHEET 19 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W310S	10	P202-19	15	TB1-1	22	MIC. KEY
2	W310S	10	P202-11	15	TB1-2	22	MIC. HI
3	W310S	10	P202-12	15	TB2-5	22	AUDIO COMMON
4	W310S	10	P202-21	15	TB2-3	22	HEADPHONE
5	W310S	10	P202-8	15	TB2-4	22	HEADPHONE JACK
6	W310	10	P202-17	15	TB2-1	22	SPEAKER
7	W310	10	P202-6	1	TB5-59	22	VOX KEY
8	W310S	10	P202-24	1	TB4-78	22	AUDIO COMMON
9	W310S	10	P202-13	1	TB5-35	22	REC. AUDIO OUT
10	W310S	10	P202-25	15	TB2-6	22	VOL. CONT.
11	W310	10	P202-7	1	TB4-43	22	SHIELD GROUND
12	W310S	10	P202-9	1	TB5-37	22	EXCTR. AUDIO IN
13	W310	10	P202-4	1	TB3-20	22	28 V. DC
14	W310S	10	P202-15	1	TB5-38	22	SPARE
15	W310	10	P202-10	15	TB1-3	22	MIC LO
16	W310	10	P202-18	15	TB3-1	22	SPEAKER GROUND
			NOTES: 2-W310S & 15-W 310S to be twisted shielded pair				
			All shielded wires between Unit 15 and Unit10				
			are to have shields connected together and connected				
			to ground bus under Unit 10				
17	W310S	10	P202-23	16	J1-C	22	AN/GRA-6 MIKE

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION						
	0		3	APR - 8 1963	6	
	1		4	APR 18 1963	7	
	2	6 March 1963	5		8	

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 20 OF SHEETS

CONVERTER/OSCILLATOR CV 786/TRC-75
UNIT NO. 11
DPA-32-33S-2

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W311S	11	P7-5	1	TB5-41	22	PTR. OUT
2	W311S	11	P7-6	1	TB6-7	22	+130
3	W311	11	P7-19	1	TB5-43	22	TR. CONT.
4	W311S	11	P7-1	1	TB3-26	22	AC POWER
5	W311S	11	P7-31	1	TB5-44	22	AUDIO IN
7	W311S	11	P7-8	1	TB5-46	22	AUDIO OUT
8	W311	11	P7-25	1	TB4-70	22	VOX KEY
9	W311S	11	P7-30	1	TB4-78	22	AUDIO COMMON
10	W311	11	P7-14	1	TB4-43	22	SHIELD GROUND
11	W311	11	P7-17	1	TB3-3	22	POWER COMMON

S 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 21 OF SHEETS

OPERATOR CONTROL PANEL
UNIT NO. 12

MS75R-124

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W312	12	P1-1	1	TB3-19	22	+28 VDC
2	W312S	12	P1-2	19	P1-14	22	Audio LO 1
3	W312S	12	P1-3	19	P1-10	22	Audio LO 2
4	W312S	12	P1-4	19	P1-15	22	Audio VO 1
5	W312S	12	P1-5	19	P1-11	22	Audio VO 2
6	W312	12	P1-7	1	TB5-6	22	Mute
7	W312	12	P1-8	1	TB5-7	22	AM Control
8	W312	12	P1-10	1	TB4-30	22	AM Control
9	W312	12	P1-11	1	TB5-47	22	TR Switch
11	W312S	12	P1-13	19	P1-12	22	Audio L1
12	W312S	12	P1-14	19	P1-13	22	Audio U1
13	W312S	12	P1-15	1	TB5-37	22	Exctr Audio IN
14	W312S	12	P1-16	1	TB5-35	22	Rec. Audio Out
15	W312S	12	P1-17	19	P1-36	22	850 cps Conv. Audio Out
16	W312S	12	P1-18	19	P1-17	22	Conv. Audio in 850 cps
17	W312S	12	P1-20	1	TB5-48	22	Audio In 85 cps
18	W312S	12	P1-21	1	TB5-49	22	Audio In 85 cps
19	W312S	12	P1-22	1	TB5-50	22	Audio Out 85 cps
20	W312S	12	P1-23	1	TB5-51	22	Audio Out 85 cps
21	W312	12	P1-24	1	TB5-52	22	KW 9 Rx
22 S	W312	12	P1-25	1	TB5-53	22	KW 9 Rx

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

UNIT NO. 12-CONT. COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-450 00

SHEET 22 OF SHEETS

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
23	W312S	12	P1-26	19	P1-22		850 cps
24	W312S	12	P1-27	19	P1-21	22	850 cps
25	W312	12	P1-28	19	P1-29	22	85 cps
26	W312	12	P1-29	19	P1-40	22	Conv Out 85 Cps
27	W312	12	P1-30	1	TB6-79	22	TTY TX
28	W312	12	P1-31	1	TB6-80	22	TTY TX
29	W312S	12	P1-32	19	P1-34	22	Keyer In 850 cps
30	W312S	12	P1-33	19	P1-39	22	Keyer In 850 cps
31	W312	12	P1-34	1	TB4-78	22	Audio Common
32	W312	12	P1-35	1	TB3-3	22	Ground
33	W312	12	P1-36	1	TB4-43	22	Shield Ground
34	W312	12	P1-37	1	TB5-18	22	Tune Power
35	W312	12	P1-38	1	TB5-2	22	28VDC
36	W312	12	P1-39	1	TB5-23	22	Ready Indicate
37	W312	12	P1-40	1	TB5-12	22	Tune Light
38	W312	12	P1-41	1	TB4-67	22	Key/Nd
39	W312S	12	P1-42	1	TB5-56	22	28VDC
40	W312S	12	P1-43	1	TB5-57	22	SWR Meter
41	W312S	12	P1-44	1	TB5-58	22	SWR Meter
42	W312	12	P1-45	1	TB3-4	22	Ground
43	W312	12	P1-46	1	TB5-14	22	Power Hi-Lo
44	W312S	12	P1-47	19	P1-41	22	Audio Keyer Out
45	W312S	12	P1-48	19	P1-42	22	Audio Keyer Out
46	W312S	12	P1-49	19	P1-23	22	Audio Conv. In
47	W312S	12	P1-50	19	P1-24	22	Audio conv. IN
48	W312S	12	P1-51	1	TB5-59	22	Vox Key
49	W312S	12	P1-52	1	TB5-60	22	Vox Key

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angular: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 1 8 1963	7		
	2	6 March 1963	5		8		

COLLINS

UNIT NO. 12 - CONT. COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-400

SHEET 23 OF SHEETS

WIRE NO	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
50	W312S	12	P1-53	1	TB5-61	22	TTY HDX-CONT
51	W312S	12	P1-54	1	TB5-62	22	Spare
52	W312S	12	P1-55	1	TB5-63	22	Spare
2	W407	12	P1-70	19	P1-33	22	TT 98
1 S	W407	12	P1-71	19	P1-30	22	TT 98
2	W408	12	P1-72	1	TB6-37	22	Rec Loop
1 S	W408	12	P1-73	1	TB6-38	22	Rec.Loop

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angular: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 24 OF SHEETS

RELAY PANEL NO. 1
UNIT NO. 13

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W313	13	K3-1	1	TB5-3	22	28 V DC
2	W313	13	K3-2	1	TB5-70	22	K2-4 Unit 1
3	W313	13	K3-1	13	K4-1	22	Jumper
4	W313	13	K4-2	1	TB4-74	22	Key
5	W313	13	K4-4	1	TB5-71	22	K2-8 Unit 1
6	W313	13	K4-5	1	TB3-3	22	Ground

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 25 OF SHEETS

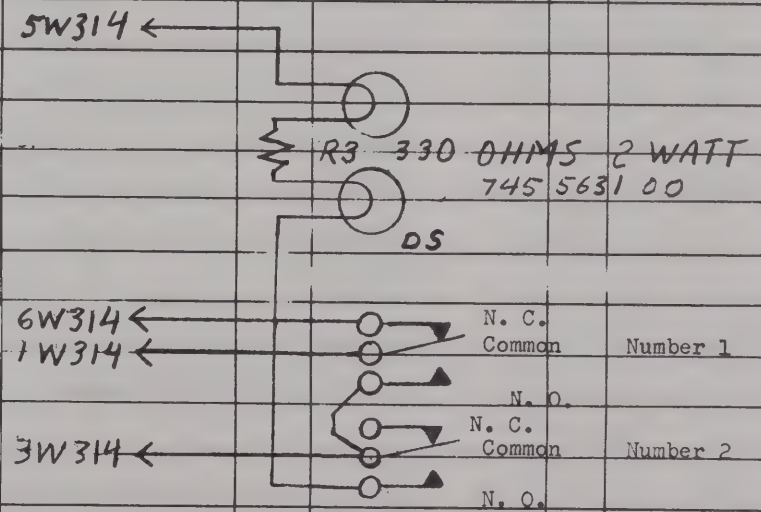
TR AND TD SWITCH PANEL
UNIT NO. 14

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W314	14	S2-COM 1	1	TB5-47	22	TR Switch
2	W314	14	S2-NO 1	14	S2-COM. 2	22	Jumper
3	W314	14	S2-COM 2	1	TB4-74	22	Key
4	W314	14	S2-NO 2	14	DS		Jumper
5	W314	14	DS	1	TB5-3	22	28 VDC
6	W314	14	S2-NC-1	1	TB6-37	22	P/A Cont



UNIT NO. 14 SCHEMATIC

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

GRA-6 LOCAL CONTROL
UNIT 16
479/U (164-7J AMPHENOL)

5 3-4362-457 00
SHEET 26 OF SHEETS
USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W316	16	J1-B	15	TB1-3	22	AUDIO COMMON
2	W316S	16	J1-F	15	TB1-1	22	MIC. KEY
4	W316S	16	J1-A	15	TB2-2	22	HEADPHONE JACK
5	W316	16	L-1	1	TB5-79	22	REMOTE TEL
6	W316	16	L-2	1	TB5-80	22	REMOTE TEL
			NOTE: Connect C16 from J1L to Ground. .001 ufd 913 1186 00				
			Connect C24 from J1C to Ground. .001 ufd 913 1186 00				

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 27 OF SHEETS

UNIT NO. 18 RED PATCH

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
3	W318S	18	J1-CC	1	TB5-61	22	+28
5	W318S	18	J1-DD	1	TB4-75	22	RX/TX CONT.
6	W318S	18	J1-C	23	J76 C	22	T D
7	W318S	18	J1-D	23	J76 D	22	T D
8	W318S	18	J1-H	23	J76 H	22	KBD
9	W318S	18	J1-J	23	J76 J	22	KBD
10	W318S	18	J1-E	23	J76 E	22	REPRF
11	W318S	18	J1-F	23	J76 F	22	REPRF
12	W318S	18	J1-K	22	J98 A	22	PTR
13	W318S	18	J1-L	22	J98 B	22	PTR
14	W318	18	All Shields	1	TB3-3	14	SHIELD GND
		18	All Shields	18	J1-NN	22	
			NOTE: All shields in cables W318, W336, W404 and W403 to be connected together at Unit 18 only				

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

AUDIO PATCH PANEL
UNIT NO. 19
MS75R-7T-FEMALE PINS RC24W-1 SOCKETS

5 3-4362-457 00
SHEET 28 OF SHEETS
USED ON ASSEMBLY
COLLINS NO. | Q'T'Y | TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W319S	19	J1-1	1	TB4-54	22	Audio Uo
2	W319S	19	J1-2	1	TB4-79	22	Audio COM
3	W319S	19	J1-3	1	TB4-55	22	Audio LO
4	W319S	19	J1-4	1	TB4-56	22	Audio Ul
5	W319S	19	J1-5	1	TB4-64	22	Audio LI
6	W319S	19	J1-7	1	TB5-4	22	Audio UO
7	W319S	19	J1-8	1	TB5-5	22	Audio LO
8	W319S	19	J1-16	1	TB5-44	22	Audio IN
9	W319S	19	J1-18	1	TB5-41	22	PTR OUT
10	W319S	19	J1-20	36	TB1-13	22	+130 V DC
12	W319S	19	J1-25	1	TB6 13	22	REM TX
13	W319S	19	J1-26	1	TB6- 26	22	REM TX
15	W319S	19	J1-27	36	9	22	Loop Rec
17	W319S	19	J1-28	1	TB6-10	22	Conv Out
	W319S	19	J1-31	36	11	22	+130 V DC
19	W319S	19	J1-32	11	P7-15	22	TTY TX
21	W319S	19	J1-35	1	TB5-46	22	Audio Out
22	W319S	19	J1-37	1	TB6-11	22	Loop Tx

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 29 OF SHEETS

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
23	W319S	19	J1-38	36	7	22	+130 V DC
25	W319S	19	J1-43	1	TB6-27	22	REM RX
26	W319S	19	J1-44	1	TB6-12	22	REM RX
33	W319	19	J1-55	1	TB6-80	22	TTY TX
34	W319	19	J1-56	1	TB6-79	22	TTY TX
35	W319	19	J1-53	1	TB5-52	22	RY 5
36	W319	19	J1-54	1	TB5-53	22	RY 5
37	W319	19	J1-57	1	TB6-22	22	REMOTE TEL
38	W319S	19	J1-58	1	TB6-23	22	REMOTE TEL
39	W319	19	J1-59	1	TB5-79	22	L1 GRA/6
40	W319	19	J1-60	1	TB5-80	22	L2 GRA/6
41	W319	19	J1-62	1	TB6-24	22	SPARE TEL
42	W319S	19	J1-64	1	TB6-25	22	SPARE TEL
45	W319	19	J1-66	1	TB4-44	22	SHIELD GROUND
46	W319	19	J1-67	1	TB6-28	22	SPARE JACK
47	W319	19	J1-70	1	TB6-29	22	SPARE JACK
48	W319	19	J1-71	1	TB6-30	22	SPARE JACK
49	W319S	19	J1-72	1	TB6-31	22	SPARE JACK

All shielded wires entering Unit 19 from points other than Unit 1 shall have shields tied together and connected to wire 45 in cable W319.

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-45700

SHEET 30 OF SHEETS

DIRECTIONAL COUPLER
UNIT 20

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W320	20	Term-1	1	TB5-57	22	SWR Meter
2	W320	20	Term-3	1	TB5-58	22	SWR Meter
3	W320	20	Term-5	1	TB3-5	22	Ground

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

C-8102 FSK
UNIT 21
DPXB-45-335-001

53-4362-457	00
SHEET 31 OF SHEETS	
USED ON ASSEMBLY	
COLLINS NO.	Q'T'Y / TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W321	21	J1-1	1	TB3-23	22	115 VAC
2	W321	21	J1-2	1	TB3-23	22	115 VAC
3	W321	21	J1-4	1	TB4-44	22	Shield Ground
4	W321	21	J1-6	1	TB3-24	22	115 V COM
5	W321	21	J1-7	1	TB3-24	22	115 V COM
6	W321S	21	J1-16	1	TB6-11	22	Loop Tx.
7	W321S	21	J1-17	1	TB6-10	22	Loop Rec
8	W321S	21	J1-18	1	TB3-7	22	-130 V DC
9	W321S	21	J1-20	1	TB5-50	22	Audio Out C-8102
10	W321S	21	J1-21	1	TB5-51	22	Audio Out C-8102
11	W321S	21	J1-23	1	TB5-48	22	Audio In C-8102
12	W321S	21	J1-24	1	TB5-49	22	Audio In C-8102
13	W321S	21	J1-25	1	TB6-32	22	Spare
14	W321S	21	J1-26	1	TB6-33	22	Spare
15	W321S	21	J1-27	1	TB6-34	22	Spare
16	W321S	21	J1-28	1	TB6-35	22	Spare

S 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

UNIT 22- TT98 — COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA — 5 3-4362-457 00 — SHEET 32 OF SHEETS

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W402s	22	TB2-3	22	P98-A	22	PTR
2	W402s	22	TB2-4	22	P98-B	22	PTR

5 3-4362-457 00

Tolerance Unless Otherwise Specified: Fractional ± Decimal ± Angle ± Scale Details

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

UNIT 23-TTY76 — COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 33 OF SHEETS

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W401	23	TB2-10		P-76-A	22	TD CONT.
2	W401	23	TB2-11		P-76-B	22	TD CONT
3	W401s	23	TB1-6		P-76-C	22	TD-Sig
4	W401s	23	TB1-7		P-76-D	22	TD-Sig
5	W401s	23	TB1-4		P-76-F	22	Reperf
6	W401s	23	TB1-5		P-76-E	22	Reperf
7	W401s	23	TB1-1		P-76-H	22	KBD
8	W401s	23	TB1-2		P-76-J	22	KBD

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 34 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

UNIT 24
RX-KW-9

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	EK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W404s	24	P101-C	18	J1-EE	22	Crypto Out RX
2	W404s	24	P101-B	18	J1-FF	22	Crypto Out RX
3	W404s	24	P101-DD	19	J1-49	22	Crypto In RX
4	W404s	24	P101-CC	19	J1-50	22	Crypto In RX
5	W404s	24	P101-X	1	TB3-4	22	Ground
			Plug-CE91372 or MRE 34F-G & (MRE-VL lever & pivot & (MRE-34H Hood)				
			Strap - L-M, N-P, R-S, T-U, V-W.				
			BB-CC, J-H, D-E				

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

UNIT 25
TX KW-9

5 3-4362-457 00
SHEET 35 OF SHEETS
USED ON ASSEMBLY
COLLINS NO. | Q'T'Y | TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W403	25	P101-K	23	76-A	22	T Cont.
2	W403	25	P101-F	23	76-B	22	T Cont.
3	W403s	25	P101-H (ADCN A8)	18	J1-P	22	T Sig
4	W403s	25	P101-J (ADCN A8)	18	J1-R	22	TD Sig
5	W403s	25	P101-DD	19	J1-45	22	Crypto Out TX
6	W403s	25	P101-AA	19	J1-46	22	Crypto Out TX
7	W403s	25	P101-X	1	TB3-6	22	Ground
			Plug-CE91372 OR MRE 34P+G & (MRE-VL Lever & Pivot) & (MRE-34H Hood				
	(A)		Strap- L-M, N-P, R-S, T-U, V-W.				
			D-E, BB-CC.				
8	W403s	25	P101- A	18	J1-AA	22	HOME COPY
9	W403s	25	P101- C	18	J1-BB	22	HOME COPY

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-432457 00

SHEET 36 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

PRIMARY POWER
W100 SERIES
UNIT NO. 26

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W101	26	PWR ENT RCPT PN 1	26	System Gnd.	10	System Gnd.
2	W101	26	PWR ENT RCPT PN 2	26	CB1-1	10	115 V 1ø 60 cps
3	W101	26	PWR ENT RCPT PN 3	26	TB1-1	10	115 V 1ø 60 cps Com.
1	W103	26	CB5-2	26	TB2-1	12	400 cps Conv. in Pwr
1	W104	26	CB4-2	26	TB2-2	12	400 cps Conv. Fan Pwr
1	W105	26	CB3-2	26	TB2-3	12	Exh. Fan Pwr.
1	W106	26	CB10-2	26	TB2-4	12	Spare 115 V 1ø 60 cps
1	W107	26	CB6-2	26	TB2-5	12	85 cps Keyer/ Conv. Pwr.
1	W108	26	CB2-2	26	TB2-6	12	Lig. Ut. Outlet
1	W109	26	CB7-2	26	TB2-7	12	TTY Pwr.
1	W110	26	CB8-2	26	TB2-8	12	Crypto Pwr.
1	W111	26	CB9-2	26	TB2-9	12	DC Pwr Supply Purin
1	W112	26	TB1-1	1	TB3-28	12	400 cps Pwr Switched
2	W112	26	TB2-1	26	K1-4	12	400 cps Pwr Switched
1	W113	26	TB1-2	1	TB3-1	12	400 cps Conv. Fan Pwr.
2	W113	26	TB2-2	1	TB3-2	12	400 cps Conv. Fan Pwr.
3	W113	26	TB1-2	26	K1-2	12	Relay K1 Pwr.
4	W113	26	TB2-2	26	K1-1	12	Relay K1 Pwr.
1	W114	26	TB1-3	1	TB3-29	12	Exh. Fan Pwr.
2	W114	26	TB2-3	1	TB3-30	12	Exh. Fan Pwr.
1	W115	26	TB1-4	1	TB3-31	12	Spare 115 V 1ø 60 cps
2	W115	26	TB2-4	1	TB3-32	12	Spare 115 V 1ø 60 cps

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR -	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

UNIT NO. 26 - CONTD. COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-436-4500
SHEET 37 OF SHEETS

WIRE NO	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W116	26	TB1-5	1	TB3-23	12	85 cps Keyer/ Conv. Pwr.
2	W116	26	TB2-5	1	TB3-24	12	85 cps Keyer/ Conv. Pwr.
1	W118	26	TB1-6	Sys.	Ut1-2	12	UT.1 Pwr.
2	W118	26	TB2-6	Sys.	Ut1-1	12	Ut.1 Pwr.
3		26					
4		26					
5	W118	26	TB1-6	Sys.	LT2	12	LT.2 Pwr.
6	W118	26	TB2-10	Sys.	LT2	12	LT.2 Pwr.
7	W118	26	TB1-6	Sys.	LT3	12	LT.3 Pwr.
8	W118	26	TB2-10	Sys.	LT3	12	LT.3 Pwr.
1	W119	26	TB1-7	Sys.	UT.2-2	12	UT.2 Pwr.
2	W119	26	TB2-7	Sys.	UT2-1	12	UT.2 Pwr.
3	W119	26	TB1-7	Sys.	UT.3-2	12	UT.3 Pwr.
4	W119	26	TB2-7	Sys.	UT.3-1	12	UT.3 Pwr.
1	W120	26	TB1-8	Sys.	UT.4-2	12	UT.4 & UT.5 Pwr.
2	W120	26	TB2-8	Sys.	UT.4-1	12	UT.4 & UT.5 Pwr.
1	W121	26	TB1-9	Sys.	UT.6-2	12	UT.6 Pwr.
2	W121	26	TB2-9	Sys.	UT.6-1	12	UT.6 Pwr.
1	W122	26	TB1-1	Sys.	UT.1-3	12	UT.1 Ground
2	W122	26	TB1-1	Sys.	UT.2-3	12	UT.2 Ground
3	W122	26	TB1-10	26	PWR ENT RCPT PN1	10	TB1 Buss Ground
4	W122	26	TB1-10	Sys.	UT.3-3	12	UT.3 Ground
5	W122	26	TB1-10	Sys.	UT.4-3	12	UT.4 & UT.5 Gnd.
6	W122	26	TB1-10	Sys.	UT.6-3	12	UT.6 Ground
7	W122	26	TB1-4	1	TB3-6	12	3ø 400 cps Pwr Gnd. DC Pwr.
1	W123	26	K1-3	1	TB3-27	12	400 cps Conv. Pwr. Switched

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angular: ± Scale: Detail:

REVISION					
0		3	APR - 8 1963	6	
1		4	APR 18 1963	7	
2	6 March 1963	5		8	

COLLINS

UNIT NO. 26

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 38 OF SHEETS

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	426	26	CB1-2	26	CB10-1	10	JUMPER
2	426	26	CB10-1	26	CB9-1	10	JUMPER
3	426	26	CB9-1	26	CB8-1	10	JUMPER
4	426	26	CB8-1	26	CB7-1	10	JUMPER
5	426	26	CB7-1	26	CB6-1	10	JUMPER
6	426	26	CB6-1	26	CB5-1	10	JUMPER
7	426	26	CB5-1	26	CB4-1	10	JUMPER
8	426	26	CB4-1	26	CB3-1	10	JUMPER
9	426	26	CB3-1	26	CB2-1	10	JUMPER
1	W124	26	TB1-7	SYS	UT7-1		UT7-GND
2	W124	26	TB1-7	SYS	UT7-2		UT7-COMMON
3	W124	26	TB2-7	SYS	UT7-3		UT7-POWER

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 1 8 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

28 V DC POWER SUPPLY
UNIT NO. 27

53-4362-457 00

SHEET 39 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W327	27	TB1-1+	1	TB3-20	18	28 V DC (+)
2	W327	27	TB1-2-	1	TB3-5	18	28 V DC (-)
3	W327	27	TB1-3Ground	1	TB3-4	18	28 V DC (Ground)

S 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 40 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

STATIC FREQ CONVERTER PWR
UNIT NO. 28
P1MS3108R-24-225 P2MS3108-20-15

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W328	28	P1-A	1	TB3-27	12	115 V AC 12
2	W328	28	P1-B	1	TB3-28	12	Ground 12
3	W328	28	P2-A	1	TB3-21	12	"A" Phase
4	W328	28	P2-B	1	TB3-13	12	"B" Phase
5	W328	28	P2-C	1	TB3-15	12	"C" Phase
6	W328	28	P2-D	1	TB3-4	12	Ground
7	W328	28	P2-E	1	TB3-12	12	Filtered "A"
8	W328	28	P2-F	1	TB3-25	12	Filtered "B"
9	W328	28	P2-G	1	TB3-26	12	Filtered "C"

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 1 8 1963	7		
	2	6 March 1953	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

RECEIVER BLOWER
UNIT NO. 29

53-4362-457 00

SHEET 21 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W329	29	Blue	29	TB7-3	18	"B" Phase
2	W329	29	Red	29	TB7-4	18	"B" Phase
3	W329	29	Green	29	TB7-5	18	Neut
4	W329	29	Yellow	29	TB7-6	18	Cap
5	W329	29	TB7-4	1	TB3-14	18	"B" Phase
6	W329	29	TB7-5	1	TB3-5	18	Neut
			NOTE: Add Jumper TB7-3 to TB7-4			18	
			Add C17 TB7-6 to TB7-5				

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 41 OF SHEETS

Tx BLOWER
UNIT NO. 30

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W330	30	TERM-1	30	TB7-9	18	"A" Phase
2	W330	30	TERM-4	30	TB7-8	18	"B" Phase
3	W330	30	TERM-3	30	TB7-7	18	"C" Phase
4	W330	30	TB7-9	1	TB3-21	18	"A" Phase
5	W330	30	TB7-8	1	TB3-13	18	"B" Phase
6	W330	30	TB7-7	1	TB3-16	18	"C" Phase

5 00

Tolerance Unless Otherwise Specified: Fractional:± Decimal:± Angle:± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00

SHEET 43 OF SHEETS

EXHAUST FAN LEFT
UNIT NO. 31

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W331	31	Yellow	31	TB9-1	18	115 V AC
2	W331	31	Red	31	TB9-2	18	115 V AC
3	W331	31	Green	31	TB9-3	18	Neutral
4	W331	31	Blue	31	TB9-4	18	Capacitor
5	W331	31	TB9-2	1	TB3-17	18	115 V AC
6	W331	31	TB9-3	1	TB3-29	18	Neutral
			NOTE: Add Jumper TB9-1 to TB9-2			18	
			Add Jumper C23 TB9-4 to TB9-3				

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION					
0		3	APR - 8 1963	6	
1		4	APR 18 1963	7	
2	6 March 1963	5		8	

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

EXHAUST FAN RIGHT
UNIT NO. 32

53-4362-457 00

SHEET 44 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W332	32	Yellow	32	TB8-1	18	115 V AC
2	W332	32	Red	32	TB8-2	18	115 V AC
3	W332	32	Green	32	TB8-3	18	Neutral
4	W332	32	Blue	32	TB8-4	18	Capacitor
5	W332	32	TB8-2	1	TB3-18	18	115 V AC
6	W332	32	TB8-3	1	TB3-29	18	Neutral
			NOTE: Add Jumper TB8-1 to TB8-2			18	
			Add Jumper C22 TB8-3 to TB8-4				

53 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	[illegible]	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

CONVERTER FAN
UNIT NO. 33

53-4362-457 00

SHEET 45 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	UNIT NO.	FROM	UNIT NO.	TO	AWG	FUNCTION
1	W333	33	1	33	TB7-1	18	Neutral
2	W333	33	2	33	TB7-2	18	115 V AC
3	W333	33	TB7-1	1	TB3-1	18	Neutral
4	W333	33	TB7-2	1	TB3-2	18	115 V AC

15 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3	APR - 8 1963	6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

SIGNAL ENTRY
UNIT NO. 34

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

53-4362-457 00
SHEET 4&5 OF SHEETS

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W334s	34	C8	11	TB6-12	22	Remote TX
2	W334s	34	C7	36	3	22	Remote TX
3	W334	34	C6	11	TB6-26	22	Remote RX
4	W334	34	C5	36	1	22	Remote RX
(5)	W334	34	C1	1	TB6-22	22	Remote Tel
(6)s	W334	34	C2	1	TB6-23	22	Remote Tel
(7)s	W334	34	C3	1	TB6-24	22	Spare
(8)	W334	34	C4	1	TB6-25	22	Spare
1	Jumper	34	1	34	L-1	22	
2	Jumper	34	2	34	L-2	22	
3	Jumper	34	3	34	L-3	22	
4	Jumper	34	4	34	L-4	22	
5	Jumper	34	5	34	L-5	22	
6	Jumper	34	6	34	L-6	22	
7	Jumper	34	7	34	L-7	22	
8	Jumper	34	8	34	L-8	22	

5 00

Tolerance Unless Otherwise Specified: Fractional ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

UNIT NO. 36 TTY CONTROL PANEL

5 3-4362-457 00

SHEET 2 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W336s	36	TB1-2	1	TB6-13	22	Remote TX
2	W336s	36	TB1-4	1	TB6-27	22	Remote RX
3	W336s	36	TB1-15	18	X	22	Meter
4	W336s	36	TB1-16	18	Y	22	
6	W336	36	TB1-6	1	TB3-7	22	130 V DC
7	W336	36	TB1-10	1	TB3-8	22	130 V DC
8	W336	36	TB1-8	1	TB3-7	22	130 V DC
9	W336s	36	TB1-12	1	TB6-7	22	TTY RX
10	W336	36	TB1-18	37	TB1-1	18	115 V AC 186A
11	W336	36	TB1-19	37	TB1-2	18	115 V AC 186A
12	W336	36	TB1-20	37	TB1-3	18	115 V AC 186A
13	W336	36	TB1-21	37	TB1-4	18	115 V AC 186A
14	W336	36	TB1-12	36	TB1-14	18	Strap

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

5 3-4362-457 00

SHEET 48 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	Q'T'Y	TYPE

UNIT 37

130 V. A. C. P/S

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	#337	37	[illegible]	1	TB3-7	22	-130
2	337	37	P02	1	TB4-[illegible]	22	+

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 1 9 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

UNIT 38
STEP-START SWITCH

5 3-4362-457 00
SHEET 49 OF SHEETS
USED ON ASSEMBLY
COLLINS NO. | Q'T'Y | TYPE

ENGINEER _____ APPROVED _____

WIRE NO.	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W435	1	TB3-12	38	K2-2T	14	400 ØA Filtered
2	W435	1	TB3-25	38	K2-2C	14	400 ØB Filtered
3	W435	1	TB3-26	38	K2-2R	14	400 ØC Filtered
4	W435	1	TB5-17	3	TP-1	22	HV ON OFF
5	W435	1	TB3-19	38	K1-A	22	28 VDC

5 00

Tolerance Unless Otherwise Specified: Fractional: ± Decimal: ± Angle: ± Scale: Detail:

REVISION							
	0		3		6		
	1		4	APR 1 3 1963	7		
	2	6 March 1963	5		8		

COLLINS

COLLINS RADIO COMPANY
DALLAS, TEXAS

PART NO. 3-4362-457

SHEET 50 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	QT'Y	TYPE

UNIT 39 TEXT SWITCH

ENGINEER _____ APPROVED _____

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W339	39	3	23	J76B	22	
2	W339	39	4	23	J76A	22	
				NOTE:			
			These wires must route through red wiremold.				

PART NO.

TOLERANCE UNLESS OTHERWISE SPECIFIED: FRACTIONAL: ± DECIMAL: ± ANGLE: ± SCALE: DETAIL:

REVISION								
	0		3		6			
	1		4		7			
	2		5		8			

D-237 (7-62)

COLLINS

COLLINS RADIO COMPANY
DALLAS, TEXAS

PART NO.

SHEET 51 OF SHEETS

USED ON ASSEMBLY

COLLINS NO.	QT'Y	TYPE

UNIT 40

REFLECTED POWER PROTECTIVE DEVICE

ENGINEER_____ APPROVED_____

WIRE NO	WIRE CODE	BK OUT	FROM	BK OUT	TO	AWG	FUNCTION
1	W340	40	TB1-13	1	TB4-20	22	Reflected Power
2	W340	40	TB1-12	1	TB5-23	22	Ready Light
3	W340	40	TB1-10	1	TB5-1	22	28 VDC
4	W340	40	XDS1	1	TB6-2	22	Ground
5	W340	40	S1	1	TB4-14	22	Fault

PART NO.

TOLERANCE UNLESS OTHERWISE SPECIFIED: FRACTIONAL: ± DECIMAL: ± ANGLE: ± SCALE: DETAIL

REVISION							
	0		3		6		
	1		4	APR 18 1963	7		
	2		5		8		

D-237 (7-62)

appendix a

DC Patch Panel change

To improve overall performance the following modification has been incorporated on the DC (Red) TTY Patch Panel. To ensure the modification has been incorporated, perform the following steps.

a. Remove the four screws from the front of the DC (Red) TTY Patch Panel and pull the panel out and down to expose the wiring.

b. Locate relay K1 and inspect wiring. If pin 5 is connected to pin 9, and pin 8 is connected to pin 12, this modification has been completed. Replace panel and secure in normal position. If this modification has not been completed, proceed to step c.

c. Remove the wire connecting pin 14 to pin 11.

d. Move all wires from pin 13 to pin 14.

e. Move all wires from pin 10 to pin 11.

f. Add a jumper from pin 10 to pin 13.

g. Add a jumper from pin 8 to pin 12.

h. Add a jumper from pin 5 to pin 9.

i. Reassemble the mounting hardware and reinstall the DC (Red TTY Patch Panel in its normal position.

APPENDIX B

REFERENCES

DA PAM 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 4, 6, 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
TM 9-213	Painting Instructions for Field Use.
TM 11-2225	Teletypewriter Sets AN/GGC-3 and AN/GGC-3A and Teletypewriter Reperforator-Transmitters TT-76/GGC, TT-76A/GGC, and TT-76B/GGC.
TM 11-2226	Teletypewriter Reperforators: TT-107/FG, TT-107B/FG, TT-108/FG, TT-109/FG, TT-345/FG, TT-345A/FG, TT-346/FG, and TT-346A/FG.
TM 11-2277	Teletypewriter Distributor-Transmitters TT-122A/FG, TT-123A/FG, and TT-235/FG.
TM 11-5038	Control Group AN/GRA-6.
TM 11-5410-205-12P	Operator and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Shelter, Electronic Equipment S-144/G.
TM 11-5815-200-10	Operator's Manual: Teletypewriter Sets AN/FGC-20, AN/FGC-20X, AN/FGC-21, AN/FGC-64, AN/FGC-66, and AN/UGC-4, and Teleprinter TT-259/FG.
TM 11-5820-251-10P	Basic Issue Items List: Mast AB-155/U, AB-155A/U, and AB-155B/U
TM 11-5820-467-15	Operator, Organizational, Field and Depot Maintenance Manual: Antenna Group AN/GRA-50.
TM 11-5965-202-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Handsets H-33E/PT and H-33F/PT.
TM 11-5965-222-15P	Operator's Organizational, Field and Depot Maintenance Repair Parts and Special Tools List: Dynamic Loudspeaker LS-166/U.
TM 38-750	Army Equipment Record Procedures.

Safety Measures to be Observed When Installing and using Whip Antennas, Field Type Masts, Towers, Antennas, and Metal Poles that are used with Communication, Radar and Direction Finder Equipment.

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

1. General

a. This appendix assigns maintenance functions to be performed on components, assemblies, and subassemblies by the lowest appropriate maintenance categories.

b. Columns in the maintenance allocation chart are as follows:

(1) Part or component. This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the component. Components, assemblies, and subassemblies are listed in top-down order. That is, the assemblies which are part of a component are listed immediately below that component, and the subassemblies which are part of an assembly are listed immediately below that assembly. Each generation breakdown (components, assemblies, or subassemblies) is listed in disassembly order or alphabetical order.

(2) Maintenance function. This column indicates the various maintenance functions allocated to the categories.

(a) Service. To clean, to preserve, and to replenish lubricants.

(b) Adjust. To regulate periodically to prevent malfunction.

(c) Inspect. To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

(d) Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

(e) Replace. To substitute serviceable components, assemblies, or subassemblies, for unserviceable components, assemblies, or subassemblies.

(f) Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

(g) Align. To adjust two or more components of an electrical system so that their functions are properly synchronized.

(h) Calibrate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

(i) Overhaul. To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

(j) Rebuild. To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements using original manufacturing tolerances and/or specifications and subsequent reassembly of the item.

(3) Operator, organization, direct support, general support, and depot. The symbol X indicates the categories responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Categories higher than those marked by X are authorized to perform the indicated operation.

(4) Tools required. This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) Remarks. Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding column.

c. Columns in the allocation of tools for maintenance functions are as follows:

(1) Tools required for maintenance functions. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) Operator, organization, direct support, general support, and depot. The dagger (†) indicates the categories normally allocated the facility.

(3) Tool code. This column lists the tool code assigned.

2. Maintenance by Using Organizations

When this equipment is used by signal services organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to and including general support are authorized to the organization operating this equipment.

PART OR COMPONENT	MAINTENANCE FUNCTION	ECHELON O/C	O	DS	GS	D	TOOLS REQUIRED	REMARKS
RADIO SET AN/TRC-91	service		X					
	adjust		X					Front Panel controls
	inspect		X				20	For removal of covers
	test		X				7,17,20	Operational checks
				X			2,6,8,12,15,17,18	Frequency, continuity, tube checks, waveforms
					X		1,3,4,5,6,9,10,11,13, 21,22,23	Output voltages, power output audio, frequency, continuity, tubechecks, waveforms
						X	1,3,4,5,6,9,10,11,13, 14,15,16,18,21,22, 23	All tests
	replace		X					
	repair			X			18	Minor repairs
	align			X			15,18	
					X		13,15,18,22	
	overhaul					X	18,19	Plus shop facilities
ANTENNA COUPLER, CU-749/TRC-75	service		X					
	inspect		X				20	
	test		X				7,20	To determine if unit is defective
				X			6	Troubleshooting
					X		5,6,22	
	replace		X				20	Pluck out parts and running spares
	repair			X			18	Minor repairs
	align			X			18	
					X		5,18,22	
	overhaul					X	18,19	Plus shop facilities
ANTENNA COUPLER CONTROL, C-2848/TRC-75	service		X					
	inspect		X				20	
	test		X				7,20	To determine if unit is defective
				X			6	Troubleshooting
					X		5,6,22	
	replace		X				20	Running spares
	repair			X			18	Minor repairs
	align			X			18	
	overhaul					X	18,19	Plus shop facilities
RADIO TRANSMITTER, T-720/TRC-75	service		X					
	adjust		X					Front panel controls
	inspect		X				20	For removal of covers
	test		X				7,17,20	operational checks
				X			2,6,8,12,17,18	Frequency, waveforms, continuity
					X		1,3,4,5,6,11,13,14,15, 17,18,21,22,23	Waveforms, spectrum analysis voltage outputs, audio, power output, tubechecks
						X	1,3,4,5,6,9,10,11,13, 14,15,16,18,21,22, 23	All tests
	replace		X				20	Running spares and pluck out parts
	repair			X			18	Minor repairs
	align			X			18	
					X		13,15,18,22	
	overhaul					X	18,19	Plus shop facilities

SELMS Form 1 Apr 64 1151 (Replaces SELMS 004 TF, which is obsolete) AN/TRC-91 1

Army-Ft Monmouth, NJ-MON 1904-64

PART OR COMPONENT	MAINTENANCE FUNCTION	ECHELON O/C	ECHELON O	ECHELON DS	ECHELON GS	ECHELON D	TOOLS REQUIRED	REMARKS
AN/TRC-91 (continued)								
RADIO RECEIVER EXCITER R-761/ARC-58	service		X					
	inspect		X				20	
	test		X				7,20	
				X			6	Trouble shooting
	replace		X				20	Running spares
	repair			X			18	Minor repairs
	align			X			18	
	overhaul					X	18,19	Plus shop facilities
RADIO SET CONTROL, C-3141/TRC-75	service		X					
	adjust		X					Front panel controls
	inspect		X				20	
	test		X				7,17,20	Operational checks
				X			2,12,15,18	Frequency checks
					X		3,4,6,18,21,22	Frequency continuity, voltage checks
	replace		X					Running spares
	repair			X			18	Minor repairs
	align			X			15,18	For channel selection operation
	overhaul					X	18,19	Plus shop facilities
OPERATOR CONTROL PANEL	service		X					
	adjust		X					Front panel controls
	test		X				7,20	Operational checks
				X			6,18	Continuity, voltage checks
	replace			X			18	Jacks, Plugs, Switches
	repair			X			18	Minor repairs
	overhaul					X	18,19	Plus shop facilities
AUDIO AMPLIFIER ASSEMBLY, AM-2306/TRC-75	service		X					
	test		X				7,20	Operational checks
				X			6,18	Continuity, voltage checks
	replace			X			18	Pluck out items and spare parts
	repair			X			18	Minor repairs
	overhaul					X	18,19	Plus shop facilities
CONTROL GROUP AN/GRA-6	service		X					See TM 11-5038 for MAC
	adjust		X					Front panel controls
	inspect		X				20	Removal of covers
	test		X				7,17,20	Operational checks
				X			6,18	
	replace		X				20	Running spares
	repair			X			18	Minor repairs
	overhaul					X	18,19	Plus shop facilities

Army-Ft Monmouth, NJ-MON 1904-64

PART OR COMPONENT	MAINTENANCE FUNCTION	ECHELON O	C	O	DS	GS	D	TOOLS REQUIRED	REMARKS
AN/TRC-91 (continued)									
CONVERTER-OSCILLATOR, CV- [illegible] PRC- [illegible]	service			X					
	adjust			X					Front panel controls
	test			X				[illegible]	
					X			[illegible],8,12,15,17,18	
						X		[illegible]	
	replace			X				[illegible]	Pluck out parts and running spares
	repair				X			[illegible]	Minor repairs
	align				X			15,18	
						X		13,15,18,22	
	overhaul						X	18,19	Plus shop facilities
CONVERTER-OSCILLATOR, 85 CPS	service			X					
	adjust			X					Front panel controls
	test			X				7,17,20	
					X			[illegible]	
						X		3,4,5,9,13,15,17,18, 22	
	replace			X				20	Pluck out parts and running spares
	repair				X			18	Minor repairs
	align				X			15,18	
						X		13,15,18,22	
	overhaul						X	18,19	Plus shop facilities
SHELTER, S-144/G	service			X					See TM 11-5410-205-12P for Maintenance Allocation
	inspect			X					
	replace				X				Fuses and lamps
	repair					X		18	Minor repairs
	overhaul						X	18,19	Plus shop facilities
POWER CONTROL PANEL	service			X					
	adjust			X					Panel controls
	inspect			X				20	
	test			X				7,20	
					X			[illegible]	
						X		[illegible]	
	replace			X					Running spares
	repair				X			18	Minor repairs
						X		18,19	
	overhaul						X	18,19	Plus shop facilities
ANTENNA MAST BASE (SHELTER MOUNTED)	service			X					
	replace			X				20	
	repair			X				20	
					X			18	
	overhaul						X	18,19	Plus fhop facilities

PART OR COMPONENT	MAINTENANCE FUNCTION	ECHELON O/C	O	DS	GS	D	TOOLS REQUIRED	REMARKS
AN/TRC-91 (continued)								
ANTENNA MAST (FIELD MOUNTED)	service		X					
	replace		X				20	
	repair		X				20	
				X			18	
	overhaul					X	18,19	Plus shop facilities
COIL-RELAY ASSEMBLY, LOADING, RF-111/TRC-75	service		X					
	inspect		X				20	
	test		X				20	Operational checks
				X			6,18	
	replace		X				20	
	repair			X			18	Minor repairs
	overhaul					X	18,19	Plus shop facilities
FAN, CENTRIFUGAL, HD-441/TSC-15	service		X					
	test		X				20	Operational checks
	replace		X				20	
				X			18,19	
	repair				X			
	overhaul					X		Plus shop facilities
FAN, VANEAXIAL, HD-422/TSC-15	service		X					
	test		X				20	Operational checks
	replace		X				20	
				X			18	
	repair				X		18,19	
	overhaul					X	18,19	Plus shop facilities
FAN, VENTILLATING, PROPELLER, HD-433/TSC-15	service		X					
	test		X				20	Operational checks
	replace		X				20	
				X			18	
	repair				X		18,19	
	overhaul					X	18,19	Plus shop facilities
MICROPHONE (50 OHM IMPEDANCE TYPE 602 KK)	service		X					
	test		X				20	Operational checks
	replace	X						
HEADSET, ELECTRICAL TYPE, H-70C/AIC	service		X					
	replace	X						
KEY, J-45	service		X					
	replace	X						
	repair		X				18	Minor repairs

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PART OR COMPONENT	MAINTENANCE FUNCTION	ECHELON O/C	O	DS	GS	D	TOOLS REQUIRED	REMARKS
AN/TRC-91 (continued)								
TELETYPEWRITER, TT-4A	service		X					Refer to TM 11-5815-206-12, for MAC
	adjust		X					Panel controls
	test		X				7	To determine if unit is defective
				X			6	Trouble shooting
	replace		X				20	
	repair			X			7,18	
	align		X				20	
	overhaul					X	18,19	Plus shop facilities
TELETYPEWRITER, TT-98( )/FG	service		X					Refer to TM 11-5815-200-20P for MAC
	adjust		X					Panel controls
	test		X				7	To determine if unit is defective
				X			6	Troubleshooting
	replace		X				20	
	repair			X			7,18	
	align		X				20	
	overhaul					X	18,19	Plus shop facilities
REPERFORATOR-TRANSMITTER, TT-76( )/GGC	service		X					Refer to TM 11-225 for MAC
	adjust		X					Panel controls
	test		X				7	To determine if unit is defective
				X			6	Troubleshooting
	replace		X				20	
	repair			X			7,18	
	align						20	
	overhaul					X	18,19	Plus shop facilities

SECTION III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS	ECHELON					TOOL CODE	REMARKS
	O/C	O	DS	GS	D		
AN/TRC-91 (continued)							
DUMMY LOAD, ELECTRICAL DA-75/U				†	†	1	
FREQUENCY METER, AN/URM-32			†			2	
FREQUENCY METER AN/VRM-79				†	†	3	
FREQUENCY METER AN/URM-26				†	†	4	
MULTIMETER, ME-26/U				†	†	5	
MULTIMETER, TS-352/U			†	†	†	6	
MULTIMETER, AN/URM-105		†				7	
OSCILLOSCOPE, OS-8A/U			†			8	
OSCILLOSCOPE, AN/USM-91				†	†	9	
INDICATOR, PANORAMIC, IP-173				†	†	10	
POWER SUPPLY PP-1104/G				†	†	11	
POWER SUPPLY PP-1243/U			†			12	
GENERATOR, SIGNAL, SG-71/FCC				†	†	13	
GENERATOR, SIGNAL, SG-479/GRM-50				†	†	14	
RF SIGNAL GENERATOR SET, AN/URM-25			†	†	†	15	
TEST SET, ELECTRON TUBE, TV-2/U					†	16	
TEST SET, ELECTRON TUBE, TV-7/U		†	†	†		17	
TOOL KIT, RADIO AND RADAR REPAIRMAN TK-87/U		†	†	†		18	
TOOL KIT, SUPPLEMENTARY, RADAR AND RADIO REPAIRMAN, TK-88/U				†	†	19	
TOOL KIT, REPAIRMAN, TK-115/G		†				20	
WATTMETER, AN/URM-120				†	†	21	
VOLTMETER, METER ME-30/U				†	†	22	
6DB PAD (FSN 5905-230-5162)				†	†	23	

APPENDIX D

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. General

This appendix lists items supplied for initial operation and for running spares. The list includes tools, accessories, parts, and material issued as part of the major end item. The list includes all items authorized for basic operator maintenance of the equipment. End items of equipment are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning. This equipment is combat essential.

2. Columns

Columns are as follows:

a. Federal Stock Number. This column lists the 11-digit Federal stock number.

b. Designation by Model. Not used.

c. Description. Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.

d. Unit of Issue. The unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

e. Expendability. Nonexpendable items are indicated by NX. Expendable items are not annotated.

f. Quantity Authorized. Under "Items Comprising an Operable Equipment", the column lists the quantity of items supplied for the initial operation of the equipment. Under "Running Spare Items", the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on hand by the operator for maintenance of the equipment.

g. Illustration. The "Item No." column lists the reference symbols used for identification of the items in the illustration or text of the manual.

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
5820-889-4206		RADIO SET AN/TRC-91:	ea	NX			
		ITEMS COMPRISING AN OPERABLE EQUIPMENT					
ORD THRU AGC		TECHNICAL MANUAL: TM 11-6820-515-12:			2		
5820-071-0774		ANTENNA KIT NO. 1:		1			
5935-072-0956		CONNECTOR, ANTENNA: P/O antenna mast installation; C/O 1 electrical contact bushing, 1 plate antenna mast; Collins Radio P/N 547-0920-00		NX	1		
5985-876-3000		HEAD, ANTENNA MAST: 1.250 in. dia x 1.750 in. lg o/a; Collins Radio P/N 547-1142-002		NX	1		
5820-251-2366		MAST BASE AB-155/U:		NX	2		
5820-068-3949		PLATE, ANTENNA MAST: Sq shape; 10.000 in. lg x 10.000 in x 1.000 in. deep; Used as holding plate for antenna mast; Collins Radio P/N 547-1146-003		NX	1		
5820-073-3200		STAKE KIT: C/O 6 guy stake bag, 1 ground rod extractor; P/O stowage installation; Collins Radio P/N 547-1141-004			1		
5410-542-2532		SHELTER, ELECTRICAL EQUIPMENT S-144/G:		NX	1		
5820-071-0776		ANTENNA KIT NO. 2			1		
5821-725-1231		AMPLIFIER ASSEMBLY AM-2306/TRC-75:			1		
5985-892-0758		ANTENNA GROUP AN/GRA-50:		NX	1		
5820-711-2208		COIL RELAY ASSEMBLY RF-111/TRC-75:			1		
5820-683-4700		CONTROL, ANTENNA COUPLER C-2848/TRC-75:			1		
5820-044-4545		CONTROL GROUP AN/GRA-[illegible]:			1		
5821-800-4780		CONTROL, RADIO SET C-3141/TRC-75:			2		
5820-226-2917		CONVERTER, FREQUENCY, STATIC: 60 to 60 cyc incoming; 400 cyc resultant freq; 115 V ac, 60 cyc, single phase; 2,500 w, max; Special feature; converts single phase input to three phase output; General Electric Co P/N 3S2020BF102B1		NX	1		

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION FIGURE NO.	ILLUSTRATION ITEM NO.
		AN/TRC-91 (Continued)					
5820-657-0490		CONVERTER, OSCILLATOR CV-786/TRC-75:			1		
5820-226-5570		COOLER, AIR, ELECTRONIC EQUIPMENT: Torrington P/N SC-716		NX	1		
5820-657-0488		COUPLER, ANTENNA CU-749/TRC-75:			1		
5985-892-3312		COUPLER, DIRECTIONAL CU-987/GRC-110AX:		NX	1		
5815-557-6256		DISTRIBUTOR-TRANSMITTER, TELETYPEWRITER TT-123A/FG:		NX	1		
4140-723-6897		FAN, CENTRIFUGAL: CCW rotation; 115 Vac, 50-60 cyc, single phase; Rotron Mfg Co. P/N KS-803		NX	1		
4140-068-4496		FAN, CENTRIFUGAL: Collins part No. 009-1463-00		NX	1		
4140-740-0359		FAN, CENTRIFUGAL: Rotron Model DREP, TYPE QS2502, Series 144JS		NX	1		
4140-852-9567		FAN, CENTRIFUGAL HD-441/TSC-15: 115 V AC, 3600 rpm;			1		
4140-883-8442		FAN, VANEAXIAL HD-442/TSC-15: 115 vac, 3/4 hp motor; Cools T-730/TRC-75;			1		
4140-854-8547		FAN, VENTILATING, PROPELLER HD-443/TSC-15: 208 V, 3 phase, 70W;			1		
4130-068-3980		FILTER, AIR CONDITIONING: Air Maze Corp part No. 121266-69			1		
5820-070-5689		FRAME, SIGNAL ENTRY: Alpha Corp P/N 53-4362-419-001		NX	1		
5820-068-6092		INTERCONNECTING BOX: C/O 8 bus bars, 1 relay, 2 switches; Alpha Corp P/N 53-4362-441-001		NX	1		
5821-630-6266		MOUNTING MT-1698/U:		NX	1		
5821-630-6267		MOUNTING MT-1699/U:		NX	1		
5821-630-6268		MOUNTING MT-1700/U:		NX	1		
5820-073-0277		MOUNTING MT-1728/U:		NX	1		
5820-071-0777		PATCH PANEL: C/O 12 PJ-203 Phone jacks, 1 relay, 1 receptacle, 1 plug, 1 panel assy, 1 power distribution panel; Collins Radio P/N 53-4362-439-001		NX	1		

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
		AN/TRC-91 (Continued)					
5820-073-0280		PLATE ASSEMBLY, ANTENNA MAST: P/O Antenna Mast installation; C/O 1 insulator cap, 2 insulator bowls, 1 antenna mast plate, 1 locked-in-stud, 1 eletrical contact; Collins Radio P/N 547-0922-004		NX	1		
5820-823-2279		POWER SUPPLY PP-2868/U:			1		
5820-068-8037		POWER SUPPLY: 38 V, 15 amp output; 115 V, 60 cyc AC operating power; Kepco Laboratories P/N PR38-5M		NX	1		
5821-630-3983		RECEIVER, RADIO R-701/ARC-58:			2		
5815-543-[illegible]8		REPERFORATOR, TELETYPEWRITER TT-109/FG:		NX	1		
5815-503-2771		TELETYPEWRITER TT-98/FG:		NX	1		
5820-682-9024		TRANSMITTER, RADIO T-730/TRC-75:			1		
5820-068-6072		TRANSMITTER, SUBASSEMBLY: C/O 1 cover, 2 jacks, 1 knob, 1 L-Pad attenuator, 1 panel, 4 resistors, 1 speaker, 2 terminal strips, 1transformer; Collins Radio P/N 53-4362-436-001		NX	1		
5820-070-5683		VIEWING DEVICE: Alpha Corp part No. 53-4362-431-001		NX	1		
		ACCESSORY ITEMS					
4210-727-8111		AXE:		NX	1		
7[illegible]-281-[illegible]9[illegible]		BASKET, WASTE:			1		
7920-178-8315		BRUSH, DUSTING:			1		
7110-226-4259		CHAIR, ROTARY: All-Steel Equipment Co P/N 711		NX	1		
6645-303-4948		CLOCK MESSAGE CENTER: Chelsea clock Co Part No. M-2		NX	1		
4210-383-7129		FIRE EXTINGUISHER:		NX	1		
6210-866-5383		FIXTURE, LIGHTING: 250 V, 660W; Swivel joint type; Swivelier Co P/N M721		NX	1		
5120-251-4489		HAMMER, SLEDGE:		NX	1		
5965-636-3144		HEADSET, ELECTRICAL: Roanwell P/N RH-70		NX	1		

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
		[illegible] (Continued)					
[illegible]		[illegible]:			1		
6238-729-9614		LANTERN, ELECTRIC:		NX	1		
6230-752-2471		LIGHT, EXTENSION: 25 ft;		NX	1		
5965-682-2750		MICROPHONE, DYNAMIC: 55 ohm imped; W/cable; Electro Voice P/N 6022191		NX	1		
5895-985-7238		REEL, CABLE STORAGE: Hycon P/N IND15			2		
5975-224-5260		ROD, GROUND:			2		
7520-162-6175		SHARPENER, PENCIL:			1		
4940-752-2525		STRAP, ELECTRICAL: for ground connection; Signal Corps dwg [illegible]			2		
		RUNNING SPARE ITEMS					
5920-142-4837		FUSE, CARTRIDGE: glass body; 1/16 amp, 250 vdc; 1/4 in dia; Littlefuse P/N 312-062			5		
5920-602-6695		FUSE, CARTRIDGE: 0.375 amp, 250 vdc; Littlefuse P/N 312-375			5		
5920-669-9383		FUSE, CARTRIDGE: Plastic; 250V, 0.375 amp; MIL type F03GR375B			5		
5920-131-9811		FUSE, CARTRIDGE: 0.010 amp 250 V Max; Bussman Mfg Co part No. [illegible]-1/1[illegible]			10		
5920-356-2185		FUSE, CARTRIDGE: 0.1 amp, 250V; Bussman Mfg. Co part No. MDL1-1-2			10		
5920-068-6074		FUSE, CARTRIDGE: 1/2 amp 125 V max; Bussman Mfg. Co. part No. GMW 1/2			10		
5920-068-3967		FUSE, CARTRIDGE: 0.750 amp, 250V max; Pin type Terminals; Bussman P/N GMW 3/4			10		
5920-543-0628		FUSE, CARTRIDGE: 1 amp 250 V Max; Littlefuse Inc part No. 361001			10		
5920-810-4740		FUSE, CARTRIDGE: 1 amp, 250 V; Bussman P/N MDC1			5		

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
		AN/TRC-91 (Continued)					
5920-280-8342		FUSE, CARTRIDGE: 1 amp, 250V; 1-1/4 in. lg; MIL type MS90078-9			5		
5920-539-7426		FUSE, CARTRIDGE: 3 amp, 250 V Max; Bussman Mfg. Co Part No 3AG			3		
5920-296-0679		FUSE, CARTRIDGE: 5 amp, 250 V max; Bussman Mfg. P/N 3AG-5			5		
5920-519-8715		FUSE, CARTRIDGE: 6.25 amp, 125V, Bussman P/N MDX6-1-4			3		F3
5920-617-9694		FUSE, CARTRIDGE: 20 amp 250V Max; Chase-Shawmut Co. part A25X20			5		
5920-068-7353		FUSE INDICATOR ALARM: 0.180 amp, 160 V DC Max; Bussman P/N GMT 18/100			5		
5920-857-8909		FUSE, INDICATOR ALARM: 0.750 amp 160V Max; Bussman Mfg Co. part No. GMT 3/4			10		
6240-682-3411		LAMP, GLOW: 1/4 W S.C. Bayonet Minature; Gen Electric Co. part No. HE51H			1		
6240-179-1811		LAMP, GLOW NEON: 0.04 W, 65 Vac; T2 bulb w/resistor; GE P/N NE2			1		
6240-223-9092		LAMP, GLOW, NEON: 0.04 W, 65 Vac; GE P/N NE2A			1		
6240-[illegible]-8634		LAMP, INCANDESCENT: [illegible]			1		
6240-865-0111		LAMP, INCANDESCENT: 5V 0.3W; Chicago Minature Lamp Works Part No. CM8-682			1		
6240-155-7836		LAMP, INCANDESCENT: 28V, 0.04 Amp; MIL type MS25237-327			3		

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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STRAC (2)
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Sig Fld Maint Shops (1)
Units org under fol TOE: (2 each)
11–155
11–157
11–158
11–500 AA–AE
11–587
11–592
11–597

NG: None.

USAR: None.

For explanation of abbreviations used, see AR 320–50.

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